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## ORIGINAL ARTICLES.

### THE RELATIVE VALUE OF THE SURGICAL PROCEDURES EMPLOYED FOR THE RELIEF OF PARALYSES FOLLOWING ACUTE ANTERIOR POLIOMYELITIS.

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*Introduction.*—When it is once demonstrated that a disease, or the results of a disease, may be alleviated by surgery, over-enthusiasm is apt to prompt the surgeon to the injudicious use of the advocated methods on poorly selected cases, the subsequent relapse of which is sure to produce a condition of adverse criticism and doubt, which is again overcome and removed as the work is taken up, with the profit added from past experience gained by failure. So it is with the surgical methods employed for the relief of the paralyses which follow acute poliomyelitis anterior. These paralyses and their attendant deformities and disabilities make of the individual who has weathered the storm of the acute disease, an interesting field for surgical endeavor,—surgical endeavor, too, which presents an unequaled variety of intricate problems which involve mechanical, physiological and surgical knowledge. At the present time the value of the various methods for the relief of these paralyses has been proved. They have passed through the stage of uncertainty, and now stand well defined as established surgical procedures.

*The acute disease.*—It may be well, before taking up the subject of treatment, to give a slight abstract of the latest statements relative to the pathology of the acute disease. Acute anterior poliomyelitis is now generally conceded to be an inflammation of the gray matter of the anterior horns of the spinal cord. The opportunity for post-mortem study of this disease has been rarely obtained. Such cases as have presented themselves, however, have shown a congestion of the blood-vessels and round-celled infiltration about the vessels within the nerve tissue. The paralysis develops early and is usually extensive; more so at the time of acute onset than in the later stages. Some of the nerve-cells of the anterior horns are so seriously damaged that they are incapable of regeneration. Other nerve-cells are capable of at least partial restoration, and function returns to the muscles which they enervate. It is

said by Spiller and Frazier that the paralyzed muscles in poliomyelitis anterior, which remain permanently paralyzed, represent the nerve-cells of the anterior horns which have degenerated, and that the muscles which have recovered represent nerve-cells which have regained their function. Muscles that still remain paralyzed after six months are not liable to regain contractile power. For the consideration of this paper, it is only necessary to regard the individual who has passed through this acute disease, has recovered partially from its effects, and is now crippled or deformed as the result of the paralysis of certain of his muscles, or certain of his muscle-groups.

*The development of the operative procedures.*—Before 1881 surgical intervention for the relief of these paralyses was confined to the use of apparatus such as braces, splints and leggings, and the occasional division of tendons. In 1881 Nicoladoni first performed tendon-transplantation. His operation consisted in inserting the central ends of the peroneal tendons into the tendo Achillis, for the relief of talipes calcaneus. This operation promised well in the beginning, but the transplanted tendon pulled out of its insertion, and the operation was regarded as a failure. In 1892 Drobnik in Germany and Parrish in New York revived this operation in a modified form. Since this date many operators have taken up the work. Bradford in Boston, Hoffa, Vulpeus and Lange in Germany, and Kirmisson and others in France have done much for the progress of this surgical procedure. What was originally tendon-grafting was extended to muscle grafting by Goldthwaite of Boston. Lange advocated transplantation and periosteal insertion of tendons and the employment of muscular power of stronger muscles by the means of lengthening their transferred tendons with silk cords. Tendon-transplantation may now be said to include muscle-insertion, muscle-transference, muscle-shortening, tendon-shortening, tendon-lengthening and transplantation, periosteal insertion of tendons, and the added method of lengthening the tendons by silk sutures.

Coupled with this conception of tendon-transplantation, operations upon the bones have been advocated.

*Arthrodeses.*—Arthrodesis finds its place in the treatment of infantile paralysis, when a joint is hopelessly flail-like. The object of arthrodesis is to make the part stable, that is, to afford in the extremity affected the conditions which would otherwise have to be supplied to it by the use of stiffening braces. Arthrodesis has been coupled with tendon-transplantation by Whitman. These operations are not designed with the object in view of securing a perfect functional result, but they have for their object the establishment of such stability in the part as will enable the patient to progress without apparatus. Arthrodeses have been done on the tibio-astragaloid joint, and also by the removal of the astragalus, —what is known as astragalectomy.

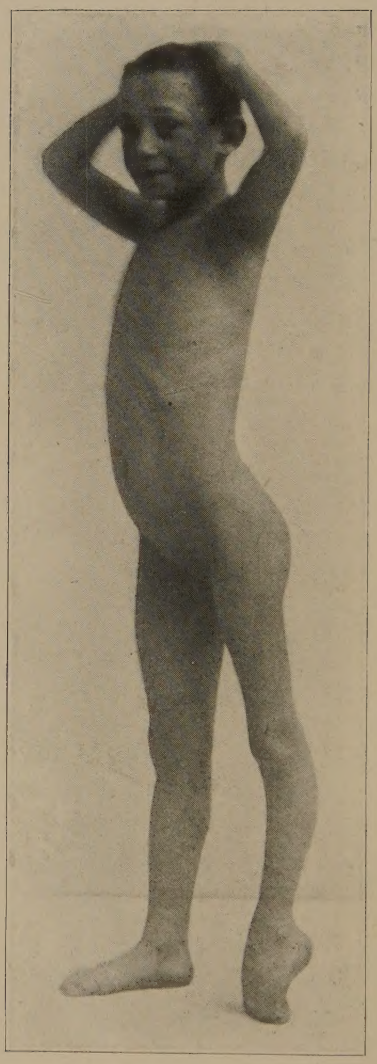


FIG. I. Poliomyelitis anterior. Left lower extremity alone involved. Atrophy, shortening, equinus, causing lateral deviation of spine.

Treatment. Arthrodesis, tenotomy of tendo Achillis, apparatus with heightened sole to compensate for shortening.

Result. Disappearance of spinal curve. Marked improvement in gait and ability to stand.

FIG. II. Poliomyelitis anterior. Both lower extremities involved. Flexion of thighs. Quadrupedal gait

Treatment. Arthrodesis both ankle joints. Transplantation of both sartorius muscles into the paralyzed quadriceps tendons. Division of contracted fasciæ latæ. Apparatus.

Result. Ability to assume the upright position. Gait active, but requires crutch support.

*Nerve transplantation.*—In cases where few muscles are paralyzed and where there are motor-nerves in the vicinity, it may be used whenever transplantation has been accomplished, with beneficial results. This was first done by Peckham of Providence, in 1900. He united healthy nerve-fibers with degenerated nerve-fibers in a case where paralysis had existed for 10 years, the result being return of function. Much of the work which has been done on nerve-transplantation has been accomplished by Spiller and Frazier of Philadelphia. The first case operated upon by them was one in which the anterior tibial muscle alone was paralyzed. The patient was a child. The operation was done by J. K. Young. The perineal nerve was exposed; the upper division of this nerve, which contains four or five branches, was grafted into the musculo-cutaneous nerve and united by fine catgut sutures. After two months some movement in the anterior tibial muscle was observed. After a year the gait is nearly normal and the child can draw up the inner side of the foot with normal power. Experimentally much work has been done on the subject of nerve-transplantation by Spitzy in Austria. His experiments proved conclusively that there will be regeneration of nerve-power in anastomosed nerves. Tubby in England has performed several successful nerve-transplantations. He has grafted the distal facial trunk for fascial paralysis into the hypoglossal nerve, with successful result. This had formerly been accomplished by Cushing of Baltimore. Tubby has also grafted the nerves from the soleus and gastrocnemius, from the internal popliteal to the external popliteal, with recovery from paralytic talipes calcaneus. Again he has relieved paralytic talipes equinovarus by insertion of the external popliteal into the internal popliteal nerve.

There are several points connected with nerve-transplantation which it is well to mention in this connection. In one of the cases where the facial nerve was transplanted to the hypoglossal, there occurred a slight atrophy of the tongue. Again we have to consider whether the muscle which has been again brought to life by such an operation can learn to functionate independently, as it has been noticed that some of the facio-accessory anastomoses have resulted in a simultaneous movement of the trapezius and the face. We must attempt in these operations to create independent muscle function.

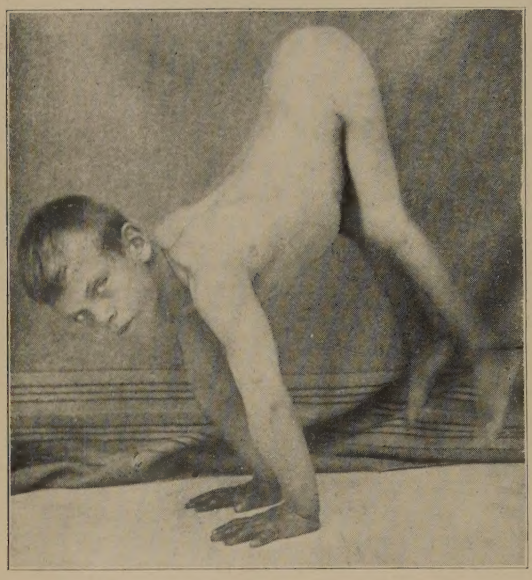
So much in a general way has been accomplished by the surgical procedures for the relief of these flaccid paralyses, it is the purpose of this paper to consider their relative value, and the application of each of these procedures to cases best suited for the demonstration of their merit.

*The relative value of these procedures.*—The merit of each of these surgical procedures, that is, of braces, tenotomies, tendon-transplantations, muscle-transplantations, arthrodeses and nerve-grafting, has been

clearly demonstrated clinically. Favorable cases have resulted from the employment of any one, or a combination of these operable procedures. On the other hand, numerous failures have been reported, resulting usually from the operations of tendon or muscle-grafting. The fact that each of these procedures has its definite scope suggests the means for eliminating, or reducing to a minimum, the chance of failure when employing any of these means for the relief of these cases. It seems that a careful selection of cases, and the consideration of each individual case, would be the proper process to which to subject all cases before operative interference is attempted. Dane and Townsend, in an article on the success of tendon-transplantation, conclude that while tendon-transplantation may in certain cases yield a satisfactory result, the selection of cases for this operation should be much more careful than it has been heretofore. Bradford points out also that much depends upon the skill of the individual operator in considering the final results of these operations. Certain principles, however, may be laid down, which will cover the range of muscular power and the chances for success following operative procedure in these paralyses.

The range of paralysis in these cases is a very wide one, extending from complete paralysis of the lower extremities, with involvement of the spinal muscles, and partial paralysis of the upper extremities, to cases where simply one or two muscles are left powerless. Let us first take up the extreme cases, where the limb is left flail-like, and no muscular power which may be utilized returns to any of the muscles. The best that can be accomplished in these cases is to make of the paralyzed limb, a limb similar to an artificial limb, that is one which will bear weight through stiffening by apparatus, or operative procedure. Many of the cases so affected assume quadruped positions. If the lower extremities are particularly involved, the upper extremities take on the function of weight-bearing and progression. For these cases it is necessary to employ apparatus such as will stiffen the lower extremities, that they may be used as props, so that the individual may assume an upright position, supported by crutches. In this connection it may be well to state that the assumption of the upright position is of the greatest importance to the mental attitude of these cases.

Next to this extreme class of cases we may make a division of those less severely affected, where, for instance most of the muscles of the leg are involved, the muscles of the thigh remaining powerful enough to be of use in walking. This class of cases usually does well with braces. Operative procedure, however, is justifiable, in that, by means of it we may discard the wearing of braces. Such cases are much benefited by the employment of arthrodeses, or the similar operation employed at the ankle, of exsecting the astragalus. By means of these operations the limb may be stiffened so that it does not give way under



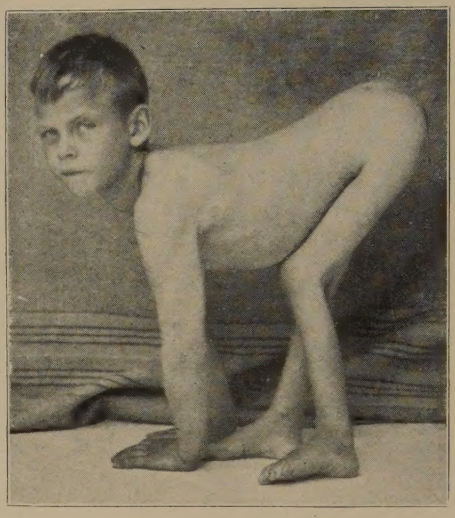


FIG. III. Anterior poliomyelitis. Involvement of both lower extremities. Extreme flexion deformity at hips. Quadrupedal attitude. Upper extremities developed to high degree of muscular strength. Simian appearance. Double knock knee.

Treatment. Arthrodeses on ankle joints. Transference of sartorius to quadriceps tendon on left side. Exsection of contracted ilio-tibial bands. Double osteotomy for knock knee. Apparatus and crutches.

Result. Ability to assume upright position. Some power of extension of left leg on thigh. Gait active requiring crutches.

FIG. IV. Radiograms. Showing results of destruction of ankle articulations. Arthrodeses for dangle foot in poliomyelitis anterior.

superincumbent weight, and the muscles that remain may place it in positions favorable to progression.

The third division of cases is of those where certain muscles in the extremity are lost; others are weakened, but there remains full muscular power in the rest. The problem in this class of cases is to utilize the muscles which possess full muscular power, either by transferring their tendons, or grafting their muscle-bellies into the tendons or muscle substance of the weakened or lost muscles. In planning these operations great care should be taken to determine the amount of power that exists in the muscle which is supposed to produce improvement in function by its transference. First, the muscle transferred should be attached in a manner that will make its contraction functionally effective. Second, the tendon into which a strong muscle-tendon is inserted should be strong, that is, it should not be disorganized by paralysis so as to become useless when tension is put upon it. Third, all transferred muscles should be subjected to a certain amount of tension, that is, the strong muscle which is cut should not be left in a relaxed condition after the transference of its tendon. Again, it is to be borne in mind that at the ankle-joint the muscles which produce motion in that joint are of importance, while those that go to the toes are of practically no importance in shoe-wearing individuals. At the wrist, on the contrary, the carpal flexors and extensors are of no importance as compared to the flexors and extensors of the fingers, inasmuch as here prehension is the object of muscular power.

The forms of paralysis which have been most benefited by tendon-transplantations are those which involve the foot. It must be borne in mind that a weak muscle, however, will not be subject to hypertrophy to a sufficient extent to restore the balance of muscular power. The best results have followed the transplantation of the whole or a portion of the anterior tibial to the outer border of the foot, to relieve equinovarus. The transplantations of a portion of the tendo Achillis to the extensor part of the foot for the relief of equinus have also shown distinct improvement. The transplantation of the peronei to the inner side of the foot for the correction of valgus deformity have not been attended by good results. This is also true where the peronei have been inserted into the paralyzed tendo Achillis for the relief of calcaneus. At the knee, the use of the sartorius as transplanted into the quadriceps extensor tendon has frequently resulted in power of extension of the leg on the thigh. The transplantation of the trapezius into a paralyzed deltoid has shown uniformly good results. The combination of arthrodeses, astragalectomy and tendon-transplantation has resulted, in many cases, in marked improvement. This is particularly true in hospital patients, as has been pointed out by Whitman. Uniformly good results follow the employment of arthrodesis at the tibio-astragaloid joint.

To a less degree are the cases successful where astragalectomy has been performed. The foot, where these two operations are done, is usually a strongly functioning apparatus, the tendency to equinus at each step, resulting in dragging of the toe, being entirely overcome.

As to the class of cases where nerve-transplantation is of value, this is a matter still to be developed. The cases which seem most favorable to the transplantation of nerves are those where the paralysis is slight, inasmuch as it involves only one muscle, or one group of muscles. Tendon-shortening and tendon-lengthening, as a rule, yield no permanent benefit.

*Conclusions.*—(1) In extreme forms of infantile paralysis, the wearing of apparatus and the use of crutches is necessary, that the upright position may be maintained. (2) In extreme forms of infantile paralysis, the wearing of heavy appliances may be materially lessened by the employment of operations designed to fix the joints. (3) In cases where there is good muscular power remaining in strong muscles, these muscles may be used to good advantage by transference of their tendons. Care should be taken that the insertion of these tendons is strong and permanent, and that the muscles pull to the best mechanical advantage. (4) In certain cases, tendon-transplantation may be supplemented by arthrodeses to good advantage. (5) In slight forms of paralyses, the grafting of nerves is a surgical procedure of recognized merit.

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## A REPORT OF A CASE OF DOUBLE RESECTION FOR THE CORRECTION OF PROTRUSION OF THE LOWER JAW.

By Vilray Papin Blair, M. D., St. Louis.

The operation was done December the nineteenth, 1897. In this report I will not go into any detailed consideration of these cases as a class as I intend, at an early date, to publish my observations on deformities resulting from developmental mal-relations of the jaws, giving an outline description of the pathological anatomy and of various operations devised for the correction of the different conditions. The operation on this particular case has been reported, quoted, or commented upon at length about twenty times in dental literature and text books that I know of and I believe a true report of the case and the circumstances under which it was performed, will make a fitting preface to the papers to follow:

The subject of this operation was at the time 22 years of age, of good personal and family history, apparently inclined to be serious and diffident. These traits, I believe, could be partially traced to the facial deformity.

Some time between puberty and twenty-one years a bilateral growth had occurred in length of the horizontal ramus of the mandibula, in one place on each side; that on the left side was between the first and second bicuspids, with a space of one-fourth inch between the crowns; that on the right was between the bicuspids and the molar, and was not as great. There was no special separation between the other teeth. The third inferior molar articulated squarely with the first superior molar, showing that the mental protrusion was not entirely due to the growth but that the whole of the tooth-bearing portion of the lower jaw was in mesial occlusion. There was also a marked lingual inclination of the incisors, the direct result of pressure of the orbicularis oris upon these very prominent teeth. This, together with the angling at the site of the abnormal interdental spaces produced an obliquity of the chin so that while the inferior incisors were but one-fourth inch in front of the superior incisors, the inferior mental border protruded much farther. The cutting edges of the incisors overlapped fully one-eighth inch.

The object to be obtained here was both to shorten the horizontal ramus and to change the mental angle. The question was, how could this be done? When the patient came to me he was, upon the advice of Dr. J. W. Whipple, D. D. S., wearing an apparatus of Dr. Angle's, but not with the latter's sanction, which, for a certain number of hours each day, produced backward pressure upon the mental portion of the mandibula. While this apparatus has proved eminently satisfactory in cases of the very young, it was not efficient when applied to hard, mature bone. He did not mention what other measures had been proposed.

The natural solution was, if too long, remove a portion.

The questions that presented themselves were, could it be cut out satisfactorily? and if it was done, would the structures in the anterior portion of the jaw suffer from division of the inferior dental nerve? and could the growth recur? were disposed of as follows: Upon the first question I satisfied myself by experiments upon cadavers, the second by analogy, and the third by the fact that at his age bony growth should be complete.

Dr. Gregory and Dr. Tupper both concurred in my reasoning. With these opinions, on account of the disfigurement, the difficulty in eating due to lack of function of the incisor teeth, and especially of the very imperfect enunciation, the patient decided to permit the attempt to be made.

Under chloroform anesthesia the patient's head was drawn over the end of the table till the shoulders rested on the edge. The head was thrown back and the mouth drawn open and both head and jaw held by hands. For the bone cuts I had devised a double-bladed saw, the

blades of which could be separated and fixed at any desired distance from each other, the hollow being ground so as not to bind in the bone, and probe ended. The skin on the under surface of the chin, at a point corresponding to the intended bone cuts, was drawn slightly up on the face and an incision five-eighths of an inch long was made along the outer inferior edge of the horizontal ramus. This incision was extended up into the mouth, passing along the outer surface of the horizontal ramus and cutting the mucous membrane at the bottom of the buccal alveolar cul-de-sac. The result of this skin drawing was that when released the wound slipped back under the chin, rendering the scars almost invisible.

The double-bladed saw was passed through this incision and the bone, its mucous and submucous coverings were cut through. When the first double cut extended three-fourths of the way through, a similar incision was made on the opposite side, and corresponding cuts of similar depth were made in the bone. With a rapid mechanical drill, holes for wiring were made through the inferior border of the bone, the saw was replaced and the sections completed. The mental portion of the mandibula was now perfectly movable, and a copper wire was placed through the drill holes and the bones drawn together. This procedure when properly performed corrects lateral as well as forward protrusion. The teeth contiguous to the cuts were wired together as the upper fixation. Now this did not, nor had it been anticipated that it would, make the newly constructed arch perfectly steady. It was intended to use the maxilla as a splint for the new mandibula. Owing to the peculiar elongation of the mental portion of the mandibula and of the incisor teeth, it was found, after changing the angle of the chin and bringing the incisors to a proper position as indicated by facial outline, that the teeth behind the cuts were separated from those above by distances varying from almost nothing posteriorly, to one-fourth of an inch anteriorly. This had been foreseen and the space was filled with softened gutta percha upon which the jaws were enclosed, it being allowed to harden in situ. This made a perfect splint and when the lower teeth were firmly wired to the upper in appropriate places, the lower jaw was immovable. This way of fixing the lower jaw was suggested to my mind by seeing Angle's fracture bands. The patient in these cases is fed by fluid drawn through the teeth.

Had it not been for an unfortunate accident I am sure that this is all that would have been required and that union would have occurred within from three to four weeks. Though precautions had been taken to prevent the accident, the patient, several hours after having come from under the anesthetic, vomited a quantity of food which necessitated the cutting of the wires that bound the lower jaw to the upper jaw. Then

the serious mistake was made of replacing these wires with a Barton's bandage of plaster of Paris.

His stay in the hospital was uneventful. He was nourished with liquids and the clinical chart, which is on file at the Missouri Baptist Sanitarium, shows that he was anesthetized at 9:20 A. M. and returned to his room at 10:30 A. M., giving one hour and ten minutes for the anesthetic and the completion of the operation. There is no record of his having suffered pain, nor that he received either an opiate or a sedative at any time. Twice his temperature reached 101.2, but most of the time it was normal. The recovery was uninterrupted until the occurrence of the second accident which I shall detail later.

I am sorry that before making his original report of this case, which appeared in the *Dental Cosmos* in July, 1898, while I was not in this country, Dr. Whipple did not consult some one who was present at the operation, as it would not have detracted from the interest nor the accuracy of his report. Personally I had never had the pleasure of meeting Dr. Whipple, until I went to his office a few days before to invite him to be present at the operation. I regret that he was not there when the operation was performed. Dr. Whipple's statement that the means adopted for holding the superior borders of the dissevered "maxilla" in position had proved entirely insufficient and that the parts had failed to unite on either side, is untrue.

I wished to discard the plaster bandage on account of the mental worry it caused the patient. Upon its removal there was apparently bony union on the right side, and a very slight but perceptible motion on the left when the fragments were grasped. It was my idea that two dental bands with a bar between them crossing the weak place would give sufficient support to allow him to go without other protection. I went with him to Dr. Whipple, whom I requested to do this for me.

This was the first time I consulted Dr. Whipple in the case. The bands were placed upon the teeth contiguous to the weak section and through rings on the outer side of these bands a bar was placed, which had on it a continuous thread to carry the nuts that held it in place. In drawing open these nuts, the force caused a separation and there was union on neither side. Dr. Whipple broke the union of the provisional callus. I said nothing but the patient mentioned the fact as he left the office.

The plaster was re-applied and Dr. Whipple applied properly adjusted buckles and after several weeks the union was again effected, the strength of which we tested when the patient was under chloroform a second time with the idea of again resecting the jaw if the union was fibrous.

Dr. Whipple also crowned the lower teeth posterior of the cut so that

they would occlude the upper, and filed some points to improve the occlusion of the incisors.

I crave pardon for this digression, but the article referred to is somewhat misleading.

In this case the bone sections were made at the site of the abnormal growths. That on the left being broadest, which was situated between the bicuspids, was taken as a gauge and a section nine thirty-seconds of an inch was removed from each side. On the right the space between the bicuspid and the molar was not as great and the second bicuspid was removed. There was a shooting forward of the whole jaw besides, and the amount removed was not sufficient to entirely correct the deformity. You will still perceive some lateral projection. Besides this the only abnormality he now has is the almost complete loss of cutaneous sensation in the lower lip, the area supplied by the inferior dental

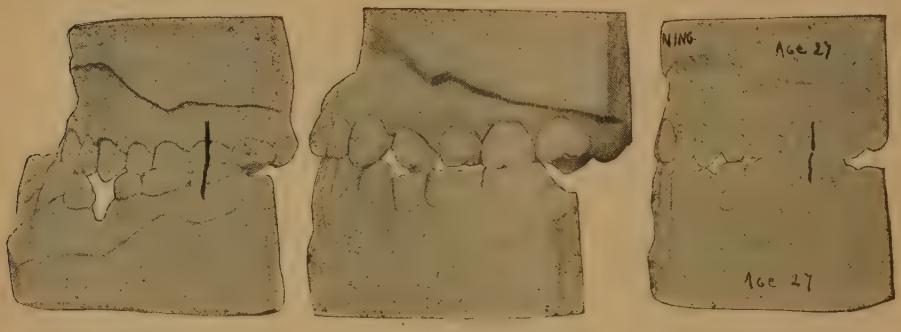


FIG. 1. FIG. 2. FIG. 3.

nerve through the mental foramen. The sensation of the tooth pulp is good.

Figure 1 is a cast of patient's jaws before the operation. Figure 2 shows the present condition with the molars capped with the gold crowns. Figure 3 shows what this condition would be with proper orthodontic treatment; here the gold crowns have been removed, the inferior incisors shortened and the superior incisors moved forward to a proper position. This, of course, was done in the cast, but it would be perfectly practical and should be done on the patient, and would have been done had I at that time a sufficient knowledge of the possibilities of orthodontic operations. It could still be done and would give a better result than the method proposed in the same case by Dr. Angle in a friendly commentary on my operation in a previous issue of the *Cosmos,* as it would produce a more nearly ideal facial outline.

These casts express the difference in our ideas as to the treatment of these cases, Dr. Angle maintaining that the primary operation should

aim at establishing directly, as nearly as possible, ideal occlusion; while I believe that the result of the primary operation should be to render practical the orthodontic operations on the teeth in both jaws to best conserve both occlusion and facial outline. This is not an ideal result, but as far as I know it is the first operation of its kind ever performed.

I thought the operation of little moment when I did it, but it seemed to attract so much attention that I was lead to go deeply into the subject of facial deformities resulting from mal-relations of the jaw bones and to me the result has been most interesting.

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## WHEN SHOULD WE OPERATE IN APPENDICITIS?

By Roland Hill, M. D., C. M., St. Louis, Mo.

In attempting to discuss the periods of time when operation may be most safely performed in appendicitis, I realize that I am treading upon a battleground that has been the scene of some of the most bitter discussions ever waged among men prominent in the medical field.

Disease of the vermiform appendix has at times been spoken of by different observers for many decades, and abscesses of the right inguinal region have been mentioned ever since the Christian Era. While disease of the appendix was recognized and described by different observers in the first half of the nineteenth century, it was not until after the brilliant work of Lister had rendered comparatively safe operations within the abdominal cavity that surgery became an important factor in dealing with diseases of this organ.

The first definitely planned and executed operation for appendicitis is generally credited with having been made by the New York surgeon, McBurney, on May 28th, 1888. Whether or not priority in perfecting this operation belongs to McBurney, it is an undoubted fact that his influence was a great factor in establishing appendix operations as rational and justifiable surgical measures.

When surgeons first entered the appendiceal field, with imperfect technique and a poor idea of the laws governing abdominal surgery, the results were appalling. It is true they found pathological conditions, and pointed out these as proof that they were right in operative intervention, but often the old and careful physicians, who had relied on nature, rest and opium, were able to show a mortality rate infinitely better than that of the radical surgeon.

Surgery of the appendix passed through several more or less defined stages before it reached the advanced plane of perfection on which we find it today. In the early period of operative work on the appendix it was a common practice to eviscerate, clean, lymph off the

intestines, and thoroughly wash out the abdominal cavity, and fortunate, indeed, was the patient who recovered after such manipulation. Then, great masses of gauze drains were put in different parts of the cavity, which acted as irritants, and frequently led to strong, annoying and often dangerous adhesions. Very often these gauze drains were charged heavily with such poisons as iodoform and bichloride of mercury, and many deaths have been attributed to their use, especially to that of iodoform.

In fact, during this period of evolution of appendiceal surgery, it is a great question if more lives were not saved by the country doctor, his opium and flaxseed poultices, than by the surgical expert and his knife. With, however, a more extended knowledge of diseases of the appendix, an increase in perfection of surgical technique, and a more thorough realization of the resisting power of the peritoneum, came a decided decrease in the mortality rate following operations upon the appendix.

As typical of the changes that have taken place, I cannot do better than to quote from an excellent paper by Lucius Hotchkiss, surgeon to one of the New York hospitals. In his service from 1895 to 1898, there were operated upon forty-two cases of appendicitis, with thirteen deaths, a mortality of 31 per cent, and from 1899 to 1902, there were operated upon seventy-two cases without the loss of a single case.

The class of cases in the one series on analysis is found to be the same as that in the other, and operation was done in every case with a view solely to the relief of the patient, and not with reference to mortality rate. In the last series were twenty-six gangrenous appendices, with or without perforation, and fifteen gangrenous appendices with advancing peritonitis. He ascribes the changes in mortality rate to improvements in technique, as he feels that formerly too much traumatism was inflicted, and too little attention paid to the natural powers of the peritoneum.

When Robt. T. Morris was able to report one hundred operations on the appendix, with a mortality of 2 per cent, he states that there was a marked reduction in his practice, as the profession did not at first believe the truthfulness of his assertions.

One great factor in reducing the mortality in appendicitis is a more perfect knowledge of the periods at which the operations can be done with the least risk to the patient. There is a time in every case when the life of the patient can be saved, and Finney has made the apt assertion that "the presence of pus shows that some one has erred; the patient, the physician, or the surgeon."

Kelly and Hurdon, in their magnificent work, have made the nominal classification of operations upon the appendix according to the stage of the disease in which they are performed, as:

1. Early operation performed at the outset.
2. Intermediate operation, performed from the second to the fifth day.
3. Late operation, performed after sufficient time has elapsed for the formation of an abscess.
4. Interval operations, performed between the attacks.

In 1890, Dr. Robt. T. Morris made the assertion, "Operate as soon as the diagnosis is made," and he says further experience has led him back to the same rule.

In regard to an operation in the early hours of a first attack, it has the advantage that the mortality will not be over 1 per cent. If the disease is limited to the appendix, i. e., if one of those rapidly fulminating general streptococcus infections has not taken place, the mortality in the hands of a careful surgeon should be a good deal less than one per cent. Finney recently told me that in nearly one thousand operations he had not lost a single case in which pus was not present.

Right here I may add another of Morris's truisms, when he says "in cases of acute appendicitis that are out of the reach of a competent surgeon, the patient is much better under the ice, opium and starvation treatment than he would be under the kindest hands that ever attempted to render untrained surgical services."

Murphy states that during the first forty-eight hours is the period of election, and that operation during this period is very little more serious than an exploratory laparotomy. This certainly is true, although we know in some virulent cases most dangerous changes may occur well inside of that period. No one knows at the outset how serious an apparently mild case will prove, and to attempt to diagnose one as catarrhal and free from danger, and another as of the serious type, is an absolute impossibility. It is possible to have an appendix practically normal throughout, excepting over a concretion, where it may be gangrenous. This occurred in one of my cases several years ago.

The case was one belonging to another doctor, and was a second attack. Inside the appendix was a concretion like a 38 calibre bullet, and here a small perforation had taken place. The abdomen was distended with pus, the intestines inflamed, the temperature 104, and pulse 140, but the system was still resisting. The patient died after the usual operation of removing appendix, thorough washing out of cavity, and putting in numerous gauze drains. Under modern treatment she would probably have lived.

Right here I wish to enter a protest against patients very ill with appendicitis being rushed to a hospital a long distance away for operation. I am sure the practice has been harmful. If he can be removed to a hospital in the first forty-eight hours it will be an ad-

vantage, but after that time, if symptoms are increasing, he is better operated upon at home.

Regarding operation at the outset, Joseph Price remarks "there is but one treatment of appendicitis; early, clean removal of the appendix."

Dr. Ochsner, who is known widely for urging delay in certain cases of appendicitis, is an urgent advocate of early operation in all acute cases in which we would be reasonably certain that the infectious material is still limited to the appendix. He reasons:

1. That there is almost no mortality in these cases if operated upon by a competent surgeon.
2. The patient will be permanently cured.
3. He will be disabled from work but a very short time.
4. His suffering is reduced to a minimum.
5. Drainage will not be necessary and hence there will be no post-operative hernia.
6. All the other complications of acute appendicitis will be avoided, e. g., peritonitis, metastatic infection, adhesions, fecal fistula, thrombophlebitis, secondary infection of the pelvic organs in female, and sterility.

In 337 cases, Ochsner had seven deaths, or 2 per cent. Of the entire number 142 were acute, with six deaths, or 3 per cent. There were 145 chronic cases, with one death.

Considering the very low mortality rate now following operation at the outset of acute cases, and the great risk of delay, the uncertainty regarding future attacks, the danger of invalidism if the patient lives, there can be but one opinion to the student of the subject, and that is that the number of deaths from this disease would be greatly reduced if all cases were operated on at the outset. In this respect, I entirely agree with that excellent St. Louis surgeon, Harvey G. Mudd, who but recently told me that he had never seen but one appendix come out too early. How many have we all seen removed too late!

A consideration of the intermediate operation during the height of an acute attack brings us to the period at which a certain number of cases will die, whether treated by medical or surgical means. In many of these cases the infection remains limited to the appendix, and operation is no more dangerous than during the first few hours of the attack, but it is in this stage, particularly, that we are so likely to find gangrene, perforations and general peritonitis. The pus found at this stage is particularly infectious, and operative measures, unless very carefully conducted, may easily spread the infection, a source, undoubtedly, of many deaths following operation at this time. The vitality of the patient is usually low, and prolonged manipulation has often been the cause of fatal trouble. In this class of cases the surgical profession

is divided into those who favor operating at once, as Murphy and Deaver, and those like Ochsner, who believe that many of these cases do better under rest, starvation and rectal feeding than they do under operation.

In general, it may be said that a sudden, decided acceleration of the pulse rate is usually considered a symptom demanding immediate operation. This sudden acceleration of the pulse I have seen repeatedly where the parts were becoming gangrenous. Maurice H. Richardson says to operate if pain is increasing.

Should persistent ileus develop during an attack, it often demands the most prompt surgical intervention. A sudden cessation of severe pain should be looked upon with suspicion, as it frequently means a gangrene of the part.

A great advance was made in the treatment of these cases when Murphy first reported to the American Medical Association a record of sixteen cases of general peritonitis, with fifteen recoveries. His paper at the time was received with incredulity, but his methods are now employed by our best men. In cases where there is general peritonitis, distension, rapid pulse, etc., but where the system is still resisting, he places a large glass drainage tube in the pelvis, and elevates the patient to an angle of from 35 to 45 degrees after the method of Fowler, so that all purulent matter will gravitate to the area drained by the tube. He lets the patient's condition determine whether or not the appendix should be removed at the time.

In these acute cases, however, I believe that there are attacks in which the most radical man will hesitate, and I think the average surgeon is very apt to delay, especially if the symptoms are at a standstill, or show signs of abatement.

In regard to late operations performed when an abscess has developed, it may be stated that any case with a well marked collection of pus should be submitted to operation. Quite a number of surgeons advise in these cases the breaking of adhesions, and removal of the appendix in every case. This procedure is certainly very radical, and it is a great question if as good results can be obtained by this radical work as by draining and only removing the appendix if freely accessible, in fact treating the case just like one of ordinary abscess formation. It is true, appendiceal attacks do occur after the healing of some of these abscesses, and require removal of the appendix at a subsequent operation. Such recurrences, however, are infrequent, and if the abscess is walled off, I am certainly in favor of simple drainage unless the appendix is easily accessible.

The question of interval operation, or operation between the attacks, is one that seems to be pretty definitely settled. The best medical statistics we have, show that in a large series of cases treated without operation, there is a recurrence of the attacks in over 20 per cent of

the patients. We know, also, that many of these patients, who have had mild attacks, may, after years of trouble, develop gangrene, abscesses and peritonitis, with their serious attendant sequellæ. The best surgical statistics today show that the mortality in these cases, if treated surgically is a good deal less than one per cent. In the hands of some of our able surgeons hundreds of cases have been treated without a death.

Thus, Murphy reports between 1,300 and 1,400 cases of interval operation, with one death. Sir Frederick Treves reports 1,000 cases, with two deaths, and Dr. James Moore, of the University of Minnesota, told me he had operated upon more than 1,000 interval cases without a death.

Thus, surgery offers you absolute cure in 99 cases out of 100, while medicine offers but uncertainty of cure, a primary mortality of about 10 per cent, and in many cases a state of chronic invalidism. A man who has had one attack of appendicitis is living, practically, with a charge of dynamite in his abdomen, that may explode at any moment and destroy his life.

The interval operation is best performed several weeks after the patient has recovered from a severe attack, as any pus focus that may be present will have its virulence very greatly lessened in that length of time, and the spreading of infection is not so likely to occur.

To recapitulate, then, I would say in closing, all cases of appendicitis, whether symptoms be mild or severe, should be operated upon in the early hours of a first attack, as by this means we avoid all subsequent complications and save more lives than by any other treatment of this grave disease. Cases with well marked abscess formation should be submitted to operation. Interval operations should always be done where the patient has recovered from one or more definite attacks of appendicitis. Cases that are in the acute stage, and after forty-eight hours are passed, should, as a rule, be submitted to operation, but a certain number of these do better if left alone, and I think the great majority of surgeons hesitate before urging operative intervention in many of these acute conditions. If, however, general peritonitis has developed, operation should be immediately performed, and a large drainage tube inserted into the pelvis, after the plan recommended by Murphy, as by this means we will save a majority of these formerly hopeless cases.

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# URETHROTOMY FOR RUPTURED URETHRA.

By Reginald Harrison, F. R. C. S.
London, England.

This operation may be required for rupture of the male urethra, occurring either without, or with, fracture of the pubic arch of the pelvis. I will first deal with the former variety.

Either partial or complete rupture of the urethra is an injury of a serious nature as it exposes the patient to risks arising out of sudden retention of urine where catheterism is sure to be difficult if not impossible, and further it lays him open to the likelihood of a permanent stricture of the worst and most unmanageable form.

The lesion is usually occasioned by blows on the perineum, by falling astraddle from a height, or by any violence applied over the line of the urethra. It is usually indicated by the discharge of blood from the urethra following one of the injuries mentioned. Its commoner position is in the deep urethra.

The nature of the lesion is generally apparent to the touch by the examination of the urethra with a bougie or catheter which should always be made.

In this way these cases may be divided into two classes, viz., those where the instrument can be passed into the bladder and where this is not found possible.

Important as this distinction may be for the sake of surgical accuracy I am by no means sure that it need make much difference in the treatment that should be adopted in those instances where the evidence is unequivocal that a distinct tear or laceration of the urethra has occurred.

Persons will bleed from the urethra from contusions alone, but these are not likely to be mistaken for those lesions where the more serious injury has happened.

It is now a few years ago since I made some observations, when lecturing on this subject, which arose out of a considerable number of cases of ruptured urethra that had been under treatment. The practice at the time I am speaking of, entirely turned on the point as to whether or not a catheter could be passed into the bladder.

In the former case the instrument was tied in for some days and then removed and the wound left to heal in this undrained septic fashion; whilst in the latter the urethra was opened at the point of lesion and the bladder drained from the perineum. There was no doubt in my mind that the urethral lesion, whether small or large, was best treated in this way.

Where the catheter was tied and retained, many cases died of sepsis

whilst in others the stricture that followed the healing of these wounds was invariably, as I have before stated, of the worst kind.

Hence it came to pass that those cases of rupture of the deep urethra where no catheter could be passed into the bladder by fair means and where a perineal section for bladder drainage was a necessity, as a rule, did far better immediately and remotely than those where the temptation was offered and accepted of treating the lesion by a retained catheter. I several times regretted the latter course but never the former.

The kind of lesion that follows the violence applied to the perineum sufficient to partially or completely rupture a tube so fairly well protected as the deep urethra, is rarely clean-cut, but is generally much contused. The urethra is not unfrequently more or less separated from its connections and in this way ecchymosis may readily spread upwards to the neck of the bladder and even into the space of Retzius. Such wounds are extremely liable to become septic and if the liability is added to by the retention of a catheter a dense cicatricial stricture, not unfrequently of some length, is quite unavoidable.

On the other hand where a catheter cannot be passed after the infliction of the lesion and a perineal section is provided sepsis is unlikely, and the damaged part is assimilated to that of a median cystotomy with drainage where repair takes place without any contraction or stricture following.

In something like two hundred and fifty median and lateral lithotomies I have performed on males at all ages I cannot remember one instance where stricture of the urethra followed. On these grounds I have for many years advocated perineal section and drainage in all forms and degrees of rupture of the deep urethra.

The suturing of lesions of the urethra after exposure by perineal incision, even when successful as in some recorded instances presents no advantage over simple incision and urine drainage.

In reference to the operation for exposing the ruptured portion of the urethra I have nothing to add to what applies to the external urethrotomy for impassable stricture.

If on exposing the ruptured portion of the canal it is found completely torn across, as seldom happens, the bladder side of the urethra can generally be discovered for the purpose of introducing a drainage tube by exercising suprapubic pressure with the hand when the wound is opened by retractors. The escape of urine will then indicate its position.

When the urethra has been completely torn across as seen by a perineal section I have never taken any special steps to keep the separated portions on the same level during the healing process. I have found nature accomplishes this.

The second variety of rupture of the deep urethra is that which not infrequently complicates fracture of the pubic arch of the pelvis. Here the canal may either be partially or completely torn across by the sharp edge of the displaced fractured ramus of the pubes. In this way I have seen the urethra cut across or punctured as if done by a sharp knife.

This accident may be occasioned in various ways by which the circle of the pelvis is submitted to severe crushes and so gives away at one of the weaker spots in its continuity. Several times I have known it to happen in the hunting field, in steeple-chasing and in accidents of this kind where the horse rolls over his unfortunate rider. In crushes, as against walls by a moving cart where the pelvis of the individual is suddenly and violently compressed. In these and other similar ways the lesion may be inflicted.

In all such instances the surgeon should be careful on first seeing the patient to satisfy himself that the urinary apparatus has escaped injury. Retention of urine following such-like injuries should excite suspicion. Especially is care to be taken in reference to this point where persons remain insensible, or were insensible, after or at the time of the accident.

Amongst the worst cases of this kind was one I saw where this discovery was not made till the third day after the pelvis had been broken by a fall from a cart and the urethra ruptured. I opened the latter from the perineum and put a drainage tube into the bladder, letting out an enormous collection of putrid urine and decomposing blood clots. The patient made a good recovery and no stricture followed. Two years have elapsed since this happened. This course is advised in all such cases where the deep urethra is ruptured by a fractured pelvis.

It must be remembered that retention of urine sometimes occurs in connection with fractures of the pubic arch by the urethra being pressed upon by the displaced bone or by clots the latter has caused.

This may be suspected when after the injury any urine that may be passed remains clear of blood and there is no evidence of bleeding connected with the urethra or the catheter that is used for examination. In these cases the use of the catheter that is used from time to time, or a tied-in catheter will probably suffice. It is an important distinction to draw in this class of cases between the retention due to rupture of the urethra complicating the fracture and that arising merely from lateral compression of the canal.

Many cases of fractured pelvis have been lost by not recognizing that the urethra has also been ruptured and delay has thus occurred in providing a free escape for the urine in the manner described.

Ruptures of the pendulous portion of the male urethra are of much rarer occurrence then the preceding. They are generally the result of some form of direct violence. In my own experience the commoner illustrations were connected with lesions inflicted on the penis by hooks

attached to cranes and such like implements used in the loading and unloading of heavy goods. These forms of ruptured urethra are very liable to slough and to leave behind one or more urinary fistulæ which are often difficult to heal. A plastic operation for the restoration of the canal may then be necessary.

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## ANGIOMA OF THE UPPER LID: OPERATION.

By J. W. Charles, M. D., St. Louis, Mo.

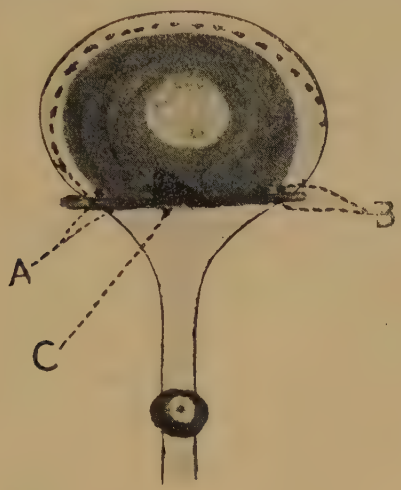
One June 14th, 1905, M. H., an infant of four months, was brought to me with the history of a slightly prominent blue discoloration near the lower margin of the upper lid of the right eye. This was first noticed by the mother when the baby was three weeks old. On June 11th, the swelling had increased to such an extent that the child could no longer open the eye.

Present Condition: A small triangular nævus is situated at the lower margin of the upper lid of the right eye, extending 2 mm. upward into the conjunctiva, 3 mm. upward into the skin of the lid and 4 or 5 mm. along the lid margin. Under this nævus and extending beyond its limits in all directions is a large diffuse blue swelling, occupying almost the entire area of the lid. It is not distinctly circumscribed and not very tense. It is most plainly visible through the skin at the centre and seems gradually to disappear into the depths of the areolar tissue of the lid and orbit. In view of the rapid development of the swelling, I thought at once of hematoma and instructed the mother to return with the patient if the hemorrhage did not disappear within two weeks.

At the next visit, July 11th, the patient's mother stated that during the two weeks following the examination, the lump had apparently become smaller and then had suddenly grown larger than it had ever been. The lid was much less tense and the tumor was more plainly defined at the centre of the lid. No dilated vessels could be seen supplying it. The patient was referred to Dr. M. F. Engman, who returned a diagnosis of "angioma within the lid" and advised operative removal. The swelling was now so great that I feared its origin was within the orbit and that I should have great difficulty in reaching its blood supply.

On July 19th, I operated at the Protestant Hospital, with the assistance of Drs. Engman and Montague. The child was now almost six months old and weighed twenty-five pounds. Under chloroform anesthesia, a Desmarre's clamp, the solid plate of which had been filed down to fit the lid, was applied and a skin incision made along the

inner edge of its ring temporally almost to the lid margin, but terminating nasally at the middle point of its vertical axis. In dissecting out the growth I found that the skin near the lid margin was firmly adherent to the tumor. This condition necessitated the sacrifice of some lash-bearing skin at the centre of the lid margin. Fortunately the only vessels supplying the cyst were situated at the outer and inner ends of the lid. The vessel supplying the tumor temporally was ligated and divided, the freed end was seized with forceps and the cyst readily dissected from the tarsus. At the nasal extremity an equally large




A, B. Ligatures of supplying vessels.
C. Position of nævus at the lid margin. Dotted line represents the line of incision.

vessel was ligated and divided. The skin flap which, in reality, was an arched bridge, was sewn in position by numerous fine sutures above and below. Healing was rapid and uneventful. The patient was permitted to leave the hospital in two days and the stitches were removed in five days. The disfigurement was very slight.

1906, February 6th—The patient can now open and close the eye without difficulty and the deformity is so slight as not to be noticeable when the eye is open. The lashes are normally placed except, of course, where they are absent at the center. The mother states that the part of the lid formerly occupied by the tumor cyst still becomes blue and swollen when the child cries. I had the opportunity of investigating this point at the office and found that only the small area of the nævus became blue and there was no swelling.

Risley (*Ophthalmic Record,* March, 1906) describes an operation for an enormous cavernous angioma of the lower eyelid which proved successful so far as a return of the disease was concerned, but which

left some deformity. In this case the outer three-fourths of the right lower eyelid was occupied by a growth 2½ cm. long, 2 cm. high and 1½ cm. deep. He feared the results of the ordinary coagulation measures and resorted to electrolysis, under which the mass became hard and shrank at the centre, but its periphery continued to spread. He thus describes the procedure which he then adopted: "A large curved needle with an ample eye was threaded with one black and one white, heavy silk thread, a yard long. Beginning at the nasal extremity of the tumor the suture was carried vertically upward through it, being careful to include the mass down to the surface of the lid cartilage, but not including it. Then reversing the procedure the thread was carried through the mass downward at a point 5 mm. from the first, and so back and forth until the entire tumor was enclosed in a series of loops, above and below. The extremities of the loops of white thread were then cut above, leaving them intact below. They were then drawn tightly home and tied, in this manner effecting a complete strangulation of the entire mass which sloughed off in about a week without hemorrhage, leaving a granulation mass at each extremity. These were also removed by strangulation with a silk thread, after which the surface cicatrized rapidly, manifesting but little tendency to cause ectropion."

I was well satisfied with the more simple operation. I used Desmarre's clamp because it controlled the hemorrhage absolutely. There has been very little formation of scar tissue and consequently no ectropion or entropion. It seems evident, however, that the tumor in Risley's case was larger than in mine.

# EDITORIAL.

## PASSIVE TOLERATION OF DANGEROUS FALLACIES.

A noted circus man once stated a certain characteristic of the American people in a phrase that has since become a truism. As a people, however, we do not admit that we differ greatly from the rest of humanity on this score, and we gain a certain satisfaction in observing the progress made in other countries by humbugs that have succeeded well with us. Thus we notice with a feeling of satisfaction akin to that which comes with the opportunity to say, "I told you so," that certain English men and women—in some instances of rank and title—have come to this country to take a hand in a recent congress of christian scientists. Another indication of how widespread has become the mental infection known as christian science in England comes with the news that a medical practitioner has so far forgotten his teachings as to become a practitioner of christian science. The case of R. v. Adcock, recently commented upon in the *British Medical Journal,* is interesting from the view point of medicine, of law and of common humanity. Adcock, it seems, was not satisfied with being a christian scientist himself, and of thus meeting his religious needs and preserving his physical welfare, but he must needs extend this form of treatment to certain of his patients. The case in point was badly selected. The patient, suffering from a deep abscess of the buttock and thigh, giving rise to symptoms of general septicemia, did not respond to the "denial" instituted by Adcock, after the manner of Mrs. Eddy, but promptly died. As a consequence, the erstwhile medical man was prosecuted on a charge of criminal negligence. On examination, he stated his belief to be that snake bite and opium poisoning may certainly be cured by a belief in the doctrines of Mrs. Eddy, but was not sufficiently versed in his new faith to answer the pertinent question put by the justice, when he asked, "Why then do christian scientists ever die?"

As has been previously stated in this JOURNAL, christian science, utterly ignoring the fact that disease is a positive natural phenomenon, attempts to supply the grossest and most patently ridiculous metaphysical fallacies as a substitute for rational therapeutic measures. This fact in itself, easily grasped as it is by any rational mind, is a sufficient answer to any controversy; indeed, is a prophecy of the dissolution of this ephemeral sect. We deem it idle to argue with those who hold that christian science is an all-powerful means of cure.

From a medico-legal standpoint, it is necessary to strip the case of R. v. Adcock as free from christian science as possible. That this is diffi-

cult to do, a moment's consideration will show. During the trial, in fact, it was several times necessary for the justice to state that Adcock was being tried for criminal negligence, not his belief in christian science, nor the merits of that faith. The question at issue was, did the accused attend his unfortunate patient as a medical man, or did he attend him as a christian science healer? This raised the confusing question, inasmuch as Adcock was a registered medical practitioner, and received regular remuneration for his attendance upon the deceased: "Whether it is in itself not sufficient evidence of negligence for a trained medical man to resort to the so-called treatment of christian science." It then remained to be proved, granting this point, that such negligence had hastened the death of the patient. Considering the tangle of facts developed during this hearing, as well as the bitter and extravagant attack made by the counsel for the defense upon the various members of the profession who were called for the prosecution, it is no wonder the jury disagreed, and the accused was acquitted.

Despite this verdict, which at first sight may seem a triumph for christian science, we are convinced that the moral culpability of the accused is evident to any right-thinking person. A physician, trained as the majority of physicians are today, who allows himself to be influenced by the insidious teachings of some unscientific pseudo-christian cult, deserves both censure and punishment. We agree with Sir Victor Horsley, who was called as a witness for the prosecution in this case, that there is a moral responsibility placed on a medical man to use every means in his power to cure his patient and we believe also that this sense of imperative duty is of the highest importance, both to the individual patient and public welfare. It is therefore incumbent upon the physician to keep his mind clear of fads, delusions and beliefs which may color his opinion in a question of diagnosis. Following this line of thought, it seems to us necessary that medical men cease to regard dangerous fallacies, such as christian science, with passive toleration; for it is clear to our mind that any system of thought based upon a fundamental error is dangerous, in that it tends to hold the mental powers of its deluded followers in abeyance. As medical men, endowed with the ability to discriminate that which is true from that which is false, we should make it a point, even though we might be in doubt as to a diagnosis and discouraged as to the results of rational treatment, never to allow ourselves to become biased by the teachings of some unscientific, quasi-religious sect; above all, not to compromise our mental attitude by stating, or even tacitly agreeing to the statement, that there must be something of therapeutic value in christian science, because certain impressionable individuals, fired by the enthusiasm of delusion, have reported "cures."

# COMMENT.

## BARON LARREY.

That Baron Larrey was a great military surgeon; that he had a sense of honor worthy of Napoleon's highest encomium; that he lived at a time when opportunities for the perfection of his specialty were unusual and could hardly be repeated today, are facts interestingly set forth by Dr. Chalmers da Costa in a paper read before the Johns Hopkins Historical Club February 12, 1906, and published in the July number of the *Bulletin of Johns Hopkins Hospital.*

Larrey lived in stormy times; he saw great upheavals. When he took his examination and received his appointment as surgeon of the navy, a vacillating king was on the throne; the corruption of centuries abetted by Louis XV, the Well Beloved, had not been stamped out and harbingers of the revolution were in the air. Larrey directly he left the medical school went into active service; first as surgeon of the Vigilante, then as surgeon with the Army of the Rhine, where he was impressed with the necessity of improving the ambulance service and later on as Chief Surgeon with the Army of Italy under Napoleon. He saw the great battles of Wagram and Austerlitz, he knew intimately the Marshals of France, but the genius who inspired him beyond all others was Napoleon. Larrey's powers of observation, his originality, audacity and probity commanded attention and won him the respect of the leading men in military and scientific circles. Not only on the battlefield (twenty-six campaigns are placed to his credit) was his work of the first order, but he proved an efficient teacher of theoretical and clinical surgery in schools specially organized by himself for the surgeons of the army. Modern surgery is indebted to him for the belief in the superiority of immediate amputation over the secondary operation; the belief in the imperative necessity for drainage of large wounds; the use of conservative operation for resection of joints; trephining for the meningeal artery and the recognition of discoloration over the mastoid process as the result of fracture of the base; and trephining for depressed fracture or any condition that causes compression of the brain.

These are but a few of the important observations made by this original surgeon. Although his contemporaries, Dubois, the surgeon, and Corvisart, the authority on the heart, achieved equal fame with him, their theories are too antiquated for our modern ideas. True Larrey had advantages denied the others, his active service on the battlefield bringing him in touch with the imperative demands for improving the surgical methods then in vogue. But without his acumen, his daring, his indefatigability, these demands would not have been satisfied. "The most virtuous man I have ever known," said Napoleon, the same Napoleon who has characterized Dubois "a stupid ass" and Corvisart "a miserable ingrate" in a book recently published in Paris, *The Journal of Sainte Helene* by General Baron Gourgaud.

# CORRESPONDENCE.

Editor Interstate Medical Journal:

I am just in receipt of a note from Professor Doctor Rene du Bois-Reymond, of Berlin University, conveying interesting suggestions as to the use of trained dogs in connection with desert expeditions; and since readers of my article on "Desert Thirst," published in the *Interstate Medical Journal,* March, 1906, may be interested in these suggestions, I am giving myself the pleasure of enclosing a transcript of his letter and duplicate of my reply. Yours cordially,

W J McGee.

Berlin, July 14, 1906.

Prof. W J McGee, Director St. Louis Public Museum:

Dear Sir—This is to thank you for your most interesting paper on "Desert Thirst," which apart from the stirring incident it records had the especial claim on me, that I have had an opportunity of seeing deserts of the kind you describe in northern Chile, having gone up to a saltpeter factory by an eight-hour drive by rail through a country where even cactuses were few and far (miles and miles) between. This of course gives only a very inadequate idea of what such a desert must be to a man who faces it on foot or on horseback with only a water can or two to take him from aguaje to aguaje—but it certainly gives a more vivid picture of the scenes you describe, than a mere printed page could convey.

From the science point of view I am also much indebted to you for having published this case, which may well be regarded as an extreme example of the resisting powers of the human body. I have early remarked the fact, that the limits of endurance given in medical textbooks and the standards used by medical men to judge of amounts of exercise, fatigue, food and drink, etc., are rather at variance with the practical experiences in cases like the one you have recorded. For instance, shipwrecked men withstand immersion in cold water for a marvelous space of time—while populations subsist on food with less nitrogenous matter than is supposed to be barely sufficient, and so on. I have a kind of collection of such cases, to which I have had much pleasure to add yours.

Finally with some diffidence I would venture a suggestion that occurred to me on reading the concluding passage of your paper: You call upon the medical faculty to find means to combat the "disease: thirst," but it seems to me that in so far as thirst indicates an absolute deficiency of water in the system, the only cure must consist in apply-

ing water—and water is just the thing that cannot be had. Perhaps evaporation could be impeded to a certain degree, but that would probably interfere with the temperature of the body. So my thoughts were directed to another line of action—and if really over 30 people die of thirst on an average in that district every year, there is good reason something should be done. The idea that suggested itself to me, was that if "Jim Tucker" had been able to provide the two explorers with a couple of trained dogs, inured to desert life, and fitted with small canteens on their collars, Pablo's sufferings would have been avoided. The dogs of St. Bernard are known all the world over for their useful work. If a desert like that of Arizona were in England, I think the Englishmen would long since have raised a particular breed of desert hounds—perhaps with some coyote-blood in their ancestry—to run on trails and supply lost wanderers with water. I cannot but fancy that if a number of settlements round the desert tracts were provided with such hounds, many of the lives annually lost, according to your account, might well be saved, and I take the liberty, from my "tenderfoot" writing table, to offer this suggestion, in case it might seem worth trying to those who know more about the nature of the case. Of course the cost and labor of a trial of this kind is out of proportion to the chances of success, but the same may be said of lighthouses and coastguard stations, that are built, kept, and paid for day by day, while they only serve now and then to prevent loss of life. But as human life has a value not to be counted in money, the trial might still seem worth while—and moreover, to a man who enjoys breeding and training dogs it would offer a fine chance of noble sport with a most noble object in view.

Yours gratefully and admiringly,

PROF. R. DUBOIS-REYMOND,
*Berlin Physiol. Institut d. Universitat.*

August 4, 1906.

Prof. Dr. R. duBois-Reymond, University of Berlin:

Dear Sir—It was a special pleasure to receive your note of July 14 offering most interesting suggestions relating to my discussion of "Desert Thirst." Pray be assured that I highly appreciate so close attention to the paper on the part of one so eminently competent to speak with authority and offer useful suggestions.

Most fully do I concur in your feeling that the limits of human endurance customarily recorded in medical literature are applicable only to average men under average conditions; they fall far short of applying to men stimulated or exalted by a motive, which in some way not yet analyzed by physiologists serves to increase—indeed, to multiply—the measure of effective strength and endurance. So far as I am able to judge from observations on various races, the really effective

effort which shapes human progress is that of insipration, i. e., intensification under powerful psychic impulse—and this seems to be equally true whether the impulse be what you and I would deem noble or ignoble.

You are quite right, too, in your question as to the expediency of medical treatment in cases where the only need is that for water. On this point I must confess to having been less specific than would have been desirable (partly because of a misprint in the second paragraph on page 21—which may not have been corrected in the copy sent you): My idea was and is that medical men, especially on the borders of deserts, should acquaint themselves with the symptoms and most effective modes of treatment of thirst in the fourth phase, i. e., in that earlier part of the stage of structural degeneration in which especially may thirst be regarded as curable disease.

I am especially struck by your suggestion that dogs might be trained as water carriers and rescuers. The suggestion is certainly worthy of consideration and perhaps of practical test, particularly if dog-fanciers could be found in the habitable portions of our arid lands. I am bound to say, however, that both my own observations in the deserts and my habits of thought are rather adverse than favorable to the plan. Dogs, even of mixed coyote blood (and the interbreeding of our artificialized jackal-hyena stock with the widely distinct and also artificialized American coyote stock is to me one of the most impressive facts of biology), are not well adapted to desert life, in which the ground temperature is too scorching for both their feet and their lungs; while the trail-scent seems to dissipate more rapidly in deserts than in moderately humid lands—and the desert distances are generally great. These practical considerations seem to have impressed desert folk generally in this country, so that the average man in arid regions makes less use of dogs for any purpose than he would—or did—in humid lands; and in my own travels through our arid lands, including hostile Indian country, I have never attached even a single dog to the party. The dogs of Saint Bernard developed a pilage coupled with a stature and strength which rendered them superior to men in traversing mountainous snow-fields, and on this superiority a special system of training was founded; but so far as my experience goes, dogs fail to fit arid regions, and fall short of men in endurance of thirst and miles, and hence do not possess the requisite foundation for training as rescuers of men. Perhaps I am prejudiced against canines, and so err in my estimation of them; but I am none the less struck by your suggestion, which I should be exceedingly glad to see tested—and as opportunity offers I shall convey the intimation to those to whom it may be of value.

Assuring you that your courteous expressions concerning the paper as a whole are highly appreciated, I have the honor to subscribe myself, with great respect, Yours cordially, W J McGee.

# MEDICAL AND SURGICAL PROGRESS.

## INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

POLYCYTHEMIA WITH THE ETIOLOGY OF "OPHTHALMIC MIGRAINE."—Costa (*Muench. Medezin. Wochen.*, May 29, June 6, 1906).—Costa says regarding the 28 cases of polycythemia he found reported in the literature, the symptomatology was variable but that the characteristic blood findings, cyanosis and enlarged spleen, are constant. It is yet unknown whether the clinical picture is an entity, or a syndrome of a yet unexplained anatomical condition. He reports a case in detail and reviews the symptomatology of the cases reported in the literature with special attention to the eye-findings.

Regarding the etiology he said the early authors believed that a primary tuberculosis of the spleen causes an increased function of the bone marrow. That some of Turk's cases prove that with the affection of the spleen there was an accompanying enlargement of the liver and that in Priese's case this was present. Turk concluded that it was due to a primary affection of erythroblastic myelogenous tissue with functional and anatomical secondary changes in the spleen and liver. Zendy thought it possible that in his case there was an obstruction to the splenic vein due to a typhoid perisplenitis which caused the passive congestion of the spleen and an increase of the erythrocytes on account of the disturbance of the splenic function. Kikuchi's case of splenic tumor with emphysema and bronchiectatic cavities suggested the possibility that the irritation in case of bronchiectasis might have affected the bone marrow instead of the bones and thus produced the picture of polycythemia. He concludes that the etiology is indefinite and unclear. That it is an affection of the blood-producing organs is certain, but whether it is primary or secondary remains unknown.

VALUE OF THE BLOOD COUNT IN SEPSIS.—Sonderon (*N. Y. Med. Jour.*, June 16, 1906).—Based on the theory that the leucocyte count indicates the body resistance offered to the absorption of toxines and that the percentage of polynuclear cells indicates amount of purulent exudate, the author places the following value upon leucocytosis and the differential count in sepsis: (1) An increase in the relative proportion of the polynuclear cells (85 per cent.) and the higher the proportion the more virulent the pyogenic process; (2) the higher the leucocytosis with a given percentage of polynuclear cells the better, ordinarily, is the body resistance; (3) a slight polynuclear increase with pronounced leucocytosis indicates slight infection and marked resistance; (4) a pronounced polynuclear increase with a pronounced leucocytosis denotes severe infection and good body resistance; (5) a pronounced polynuclear increase and

slight or no leucocytosis indicates severe infection and decreased or no body resistance; (6) absence of leucocytosis in severe inflammation is a bad prognostic sign; (7) increased polynuclear percentage and stationary or decreased leucocytosis and an increasing degree of infection indicates decreasing resistance; (8) decrease in both the polynuclear percentage and leucocytosis denotes improvement. He says that careful observation in almost 2,000 surgical cases has strengthened his belief that a complete blood examination presents diagnostic and prognostic data, while the clinical picture may be confusing. He counts the following among the failures encountered in the application of these principles: (1) Pus confined by dense fibro-pyogenic membranes; (2) acute infections, as pneumonia, erysipelas, etc.; (3) secondary infections of tuberculosis, typhoid, etc.; (4) double infections, or unknown focus of absorption; (5) errors of technique.

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The Origin and Nature of Blood Corpuscles.—Wright (*Boston Med. and Surg. Jour.*, June 11, 1906).—Wright thinks the inference seems to be justified that blood platelets are detached portions of the cytoplasm of the giant cells. He gives the following reasons for this deduction: (1) That the relative amount of the cytoplasm of the giant cells exhibiting ameboid form and the occurrence of the degenerative-looking giant cell nuclei, having little or no cytoplasm, shows that the giant cells do lose their cytoplasm; (2) that this takes place in only a small proportion of the giant cells and is not greater than could be expected in view of the number of blood plates; (3) that he has observed protoplasmic movement of identical character, both in the marginal zone of the giant cells and in the hyaline zone of the blood plates; (4) blood plates are found only in the blood of mammals and mammals are the only creatures having giant cells in the blood-forming organs; (5) that the blood plates make their first appearance in the embryonic blood at about the stage of development of the giant cells having appeared in the blood-forming organs. (He states that this point is not definitely established.) (6) The comparison of the results of the enumeration of blood plates (Helberg and Platt) in certain pathological conditions with the histological findings of the bone marrow in the same diseases suggests the relationship between the blood plates and giant cells; that in pernicious anemia and lymphatic leukemia blood plates are decreased in the blood and the giant cells in the bone-marrow, while in post-hemorrhagical anemia and myelogenous leukemia there is an increase in the number of blood plates in the blood and the relative and absolute increase of the giant cells in the marrow.

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An Unexplained Febril Affection with the Highest Temperature Reported to Date—Heller (*Munch. Med. Wochensch.*, June 19, 1906).—The remarkable case reported by Heller was one of fracture of one rib, concussion and probable infection of the cord. The highest temperature (taken with 7 thermometers) registered 49.9° C. (122° F.) axillæ. It remained at 45°-47° C, for seven days and was not below 42.2° (108° F.) for seven weeks. During the entire time the patient did not experience any other symptoms. The pulse was never over 120 and complete recovery was the ultimate result.

The Effect of Roentgen Rays on the Blood—Benjamin, Reuss, Sluko, Schwartz (*Wiener Klin. Wochensch.*, June 28, 1906).—The authors concluded from numerous experiments by which they estimated the effect of the x-ray upon the morphology of the leucocytes, the chemical changes of the blood and the means of production of the same by the x-ray is as follows: In regard to the changes of the white cells Benjamin and Sluko say that not only exposures of the blood-building organs but also isolated exposures will produce a leucocytosis and lymphopenia. That the cardinal difference between exposing the entire animal and isolated exposures, is that in the latter, regeneration with astonishing ease is produced, which returns to the normal in 24 hours, while in total exposures regeneration takes from 7 to 10 days. As to the stages of this production after the exposure during the first day there was moderate decrease in the lymphocytes and increase of the polynuclear cells; in 24 to 36 hours appearance of an increase in the number of the large mononuclear cells; second to third day decrease in the polynuclear and an increase in the lymphocytes; and in one week beginning regeneration of the blood picture, Schwartz concluded as to the effect of the x-ray producing these changes (1) that there is a general chemical disturbance in the tissues producing a substance which is a positive chemotactic for the polynuclear leucocytes (Roentgen leucocytosis). (2) The presence of this substance in the exposed tissue corresponds to the Roentgen therapy reaction producing the increased acidity of the urine. (3) That this must be sharply differentiated from the Roentgen leucopenia. This takes place by the direct effect of the x-ray upon the tissue producing the leucocytes retarding the new production of the white corpuscles. Benjamin and Reuss in their experiments as to the chemistry of the x-ray on the blood concluded that after intense exposures of an organism, chlorine is produced and that it was observed that the presence of this element (chlorine) in the blood was accompanied by a leucocytosis.

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Diagnosis of Carcinoma of the Stomach—Kuttner (*Berliner Klin. Wochensch.*, June 18-25, 1906).—Kuttner writes in detail on the early diagnosis of carcinoma of the stomach. Recognizing that only an early diagnosis is of any value to the patient or of any satisfaction to the physician, he urges that all diagnostic means be exhausted on suspected cases. Under predisposing causes he gives (1) heredity (Ewald, 6-7 per cent.); (2) previous lesions of the stomach, especially ulcers; (3) trauma. Among the early symptoms are (1) progressive stomach symptoms which will not react to the ordinary treatment in a man 50 or 60 years old where there has been no stomach complaint previous to that age. He has, however, observed carcinoma in the young. (2) Acute dyspepsia from a supposed error of diet and a sudden profuse hemorrhage exhibited by a hematemesis or melena often usher in the disease. (3) General dyspeptic symptoms mistaken for innocent catarrhal gastritis. (4) Progressive loss of appetite. Yet he has recorded some cases in which the appetite was good until death. (5) Aversion to meat. (6) Cachexia rarely found at the onset, and edema present usually only in the last stages. (7) Diffuse itching is often an early sign. (8) Angioma of the skin are not of special value. When not

congenital are sometimes present in the later and rapid development of carcinoma. (9) Enlargement of the clavicular glands occurs in the later advanced form, but umbilical enlargements may be early and that metastasis in the ovaries should always be sought. (10) Foul regurgitations, or foul odor through the tubes and ill smelling particles in the eye of the tube denote ulceration of the growth. (11) Pain may be absent constantly and is of little value. (12) Vomiting usually denotes carcinomatous orifices and may be absent even in those cases. (13) Muller and Tripler noted diarrhoea in 35 to 60 per cent., but that he and Boas had not observed so large a per cent. As to the production of Hcl he says that (1) its absence is not indicative for (a) it may occur in many other conditions (chronic gastritis, neurosis, atrophy, diseases of the lungs, etc.) and (b) it may be present in carcinoma on the base of an ulcer. Regarding the presence of lactic acid he says this is not positive for (a) it may be absent with carcinoma and (b) it is found with other conditions, but (c) the constant positive finding of lactic acid due to fermentation is of the greatest diagnostic importance; but it is rarely an early symptom. As to the value of the ferments he says they correspond to the findings of Hcl and vary accordingly. Glassner has used them for diagnostic worth as to the location as follows: (a) If pepsin and rennin are both markedly decreased the fundus is the seat of the lesion; if rennin is not decreased in proportion to the pepsin, the tumor is in the pylorus. The trytophan reaction is of little value. The motility is decreased in carcinoma of the pylorus and lesser curvature in the majority of cases; but in fundus carcinoma often remains normal until the very end. The presence of a trace of blood and pus (leucocytes) in the empty stomach is a very valuable finding, for other conditions producing same are easy to exclude. The presence of blood even in traces chemically is one of the most important findings (ulcer must be excluded). Blood in the stools may come from other sources (diet, intestines, etc.). These occult hemorrhages must be found repeatedly or constantly to be of any value. The constant absence of blood speaks against carcinoma. Tumor tissue found in the vomitus of stomach contents, eye of tube or washings, are positive findings. He has never been able to make use of Hemmeter's method of curetting the stomach. Protozoa, as amœba and flagella, according to Cohnheim, found in the stomach contents are a relative early finding, they do not occur after the contents become fetid. Long, threadlike bacilli have the same importance as the lactic acid, and occur with stagnation and decreased Hcl. Occasional long bacilli are found in the presence of Hcl. Sarcine is found only in carcinoma ulcerosa. The urine and blood are of little diagnostic value. The most positive finding is the presence of a tumor of malignant character connected with the stomach. He classifies carcinoma without tumor into the two following groups according to the stomach contents: (1) Carcinoma with a good motility. These present a decreased amount of Hcl, absence of lactic acid, lactic acid bacilli and sarcine. He gives as points of differentiation from achlorhydria, gastritis acidia, "anademe" (atrophy) and neurosis the following: (a) Occult hemorrhage in the stomach contents and feces. (b) Constant finding of pus and blood in empty stomach. (c) Tumor tissue in stomach contents or vomitus. (d) Amœba and flagella in the stomach. (e) The presence of albuminous

washings in an empty stomach, according to Sollman. (f) The course and physical findings. (2) Carcinoma with a motor insufficiency coexisting with either (a) free Hcl present—sarcine but no lactic acid or lactic acid bacillus, and (b) Hcl absent and then lactic acid and lactic acid bacillus would be present with no sarcine. In regard to the tumors he demonstrates the difficulty of differentiating between benign and malignant tumors of the stomach, spasms of the pylorus, muscular hypertrophy and thickened scars in the region of the pylorus, exudates or perforations causing localized tumors due to ulcers offer their difficulties. He shows that a tumor of three years' duration may not necessarily be benign (Gerardt) as it is possible for carcinoma to be seated upon an old ulcer. From the stomach contents this differentiation is made by Gluzinski and Sigel's method but these methods have not proved to be accurate. The presence of metastasis, lymph glands, ovaries, etc., are of value. Among other experiments Kelling found precipitins in the blood present in 15 cases of carcinoma of the esophagus, stomach and large intestine, but Fulo failed to produce a reaction in the blood serum of carcinomatous patients with an abstract of the tumor tissue. With the use of x-ray and Riepel's meal, he says that valuable points have been demonstrated for the diagnosis of carcinoma of the stomach as (1) they produce unfilled spaces and defects in the flow of the fluid mixture through the stomach; (2) they produce abnormal outlines and contours; (3) they modify the peristalsis.

## PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

THE DEMONSTRATION OF SPIROCHAETA PALLIDA IN TERTIARY SYPHILITIC PRODUCTS.—Levaditi (*Deutsch. Med. Woch.*, 1906, No. 23).—The knowledge that tertiary lesions are infectious is today established, especially by the observations lately published by Neisser. The apparent absence of Schaudinn's organism from lesions at this stage of syphilis was an objection raised by some as evidence against its etiologic role; others, including Schaudinn and Hoffman, assumed the possibility that the spirochæta, considered as a protozoon, might appear in the tertiary period in a stage of development not yet recognized, or very minute. Levaditi's method of staining the organism in tissues has proven effective in this direction as by this time some successes have been reported by Spitzer (two cases) and Rille and Volkerodt (one case) who found the spirochæta in sections of tertiary lesions. That they occur in lesions of this character in congenital syphilis was known. One such case was observed by the reviewer where the organism could be demonstrated in smear specimens. In acquired syphilis this has not yet been achieved. Doutrelepont and Grouven report four cases of tertiary syphilis in which the smear specimens revealed spirochæta. Another observer has found them in the vessel walls of syphilitic arterial lesions. It seems therefore that in the human organism wherever the syphilitic process exists in any form, the spirochæta is also

always present. In other words, it appears that the organism is always and everywhere the same, and so it is possible that we may be compelled to give up the idea that it does not represent a type of bacterial life, but a stage in the cycle of development of a protozoic organism. It is hard to decide at the present time as the observations published by Novy and those by Prowavzek on the bird spirochæta are absolutely contradictory, the latter strongly suggesting a protozoal character for this spirochæta.

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A Sero-Diagnostic-Reaction in Syphilis.—Wassermann, Neisser and Bruck (*Deutsch. Med. Woch.*, 1906, No. 19).

About the Demonstration of Specific Syphilitic Antibodies and of Their Antigens in Luetics.—Detre (*Wien. Klin. Woch.*, 1906, No. 21).

In both papers a method is described by which the processes of syphilitic substances in a serum can be demonstrated. Both use the method of inhibition of hemolysis after Moreschi. Wassermann has shown that a monkey inoculated with human syphilitic material will in seven or eight weeks yield a serum that if brought together with extracts of human syphilitic lesions always shows the phenomenon. Thus it is proven that in such a serum antibodies against syphilitic substances are present while the extracts themselves contain the latter. The action of this serum is the same on syphilitic material from monkey and from man. Very careful controls were made to show that the reaction was specific and not due to a precipitin formation caused by the injection of human proteid with the syphilitic substances in monkeys. The practical importance of this finding is apparent as we are enabled by them to determine whether in a human serum, or in an immune serum, specific syphilitic antibodies are present, and eventually to learn about their quantitative relations. To this is added the possibility of showing the presence of syphilis in isolated organs, a point that will be of great advantage for experimental investigations. It would be very important also to show the presence of syphilitic substances, or of their antibodies, in the circulating blood. Wassermann has succeeded in doing this in some cases, in others he has failed, most likely on account of the small potency of the immune serum at his disposal. The German expedition sent to India will have to solve the problem in this direction in the proposed extensive study of syphilis in monkeys.

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Studies Upon Experimental Variola and Vaccina in Quadrumana—Brinkerhoff and Tyzzer (*Jour. of Medic. Research*, Vol. 14, No. 2).—The postulate made by Councilman in 1902, that experimental studies must decide the role that cytorrhyctes played in variola and vaccina was the object of Brinkerhoff's and Tyzzer's work, carried out at the biological Laboratory of Manilla. Their results are very interesting and important and may be summarized shortly as follows: Experimental vaccinia in maca-cynomologus was produced in 46 animals by inoculation into the skin, cornea and the mucosa of the soft palate, the nasal septum and the mucosa of the lower lip. Typical vaccinia resulted always, without general eruption; frequently the regional lymphatic glands were enlarged. Experimental variola was studied in two species of macacus and in the orang. The virus used was obtained from European and Philippine patients. Fifty out of 65 monkeys

inoculated into the skin of the abdomen showed a general eruption in 7 to 10 days; altogether the course of infection was the same as in man. In four orangs inoculated the lesions were very similar to those of the human variola vera, in the other monkeys, they gave more the picture of variola inoculata. Of eighteen monkeys inoculated in the cornea and twenty-nine inoculated in various mucous membranes a very considerable number developed general exanthema. The results of experiments made to ascertain whether variola occurs naturally in monkeys were negative so far as inhalation was concerned, while of course direct inoculation into the respiratory passages was successful. The studies of the immunity of monkeys after vaccinia or variola inoculation showed they were immune to both forms after vaccinia, but not always immune to vaccinia after variola. The smaller production of immune-substances in vaccinia inoculata is cited as the explanation of this observation. The degree of protection depends upon the site of inoculation and upon the character of the virus. Cytoplasmic stages of cytorrhyctes were found in all of the specific lesions, intranulear stages only in variola. They are, therefore, specific for variola. They were very numerous in the primary lesions of the orang, and rare in the exanthema after inoculation into the skin, more frequent after intravenous injections. The authors found cytorrhyctes within the corium and within endothelia of blood-vessels and they consider this observation as an indication of the manner of dissemination. The most feasible explanation for the constant presence of the cytorrhyctes is, according to the authors' opinion, given by assuming that these cell inclusions are parasites and are the etiological agent of the disease. Differences exist between the reaction of vaccinia and variola virus on physical and chemical influences; the latter passes the Berkefeld filter, not the former. Sixty per cent glycerine prevents a general exanthema, and if passed a number of times through monkeys it loses its virulence.

In the same journal Tyzzer describes his studies in the histology of varicella lesions. Of the interesting structural changes it may be only mentioned that he found in epithelial cells in nuclei and protoplasm peculiar eosinophilous bodies. He leaves it questionable whether these inclusions are parasites.

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About Ochronosis—Pick (*Berl. Klin. Woch.*, 1906, No. 16-19).—The rare and obscure condition of ochronosis, mostly only discovered at autopsy, was observed by Pick in the case of an old woman, where the peculiar deep bluish discoloration of certain cutaneous areas enabled him to make the diagnosis intra vitam. The study of this case with an extensive review of all cases so far reported, led Pick to formulate certain theses, that in some way at least give a little more definiteness to this mysterious condition. The ochronosis, he says, is a definite form of melanotic pigmentation, the pigment being nearly related to melanin. First the pigment, circulating in the blood, impregnates the cartilaginous tissues, sometimes also connective tissue, muscle fibres and epithelia. The cells impregnated do not show any evidence of lessened vitality. The pigment, first diffuse, can later become granular. In both forms it is free from iron. The dark color of the surfaces is simply due to phenomena of light interference within the tissues. The pigment is

derived from the aromatic nucleus of proteid by action of a ferment, the tyrosinase.

Small amounts of carbolic acid introduced for a long time cause ochronosis. It can arise also through the action of tyrosinase on alcaptonic acid in the organism of individuals affected with alcaptonuria. Also in conditions where in an autolytic endogenic proteid dissintegration such proteids are found in the presence of the ferment. The pigmentation can involve external surfaces, the ears, sclera, face, legs, hands, so that the diagnosis can be made during life. In some cases it is excreted with the urine. In these cases, the urine, on standing, becomes black brown. Ochronosis can affect the kidneys themselves and the urine contain casts, the centrum of which is formed of melanin.

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Experiments on Monkeys by Inoculations of Framboesia-Virus —Alb. Neisser, Baermann, Halberstaedter (*Muench. Med. Woch.*, 1906, No. 14).—Although as long ago as 1881 Charlouis established the fact that Frambœsia was different from syphillis and that an individual suffering with the first infection could acquire syphilis, the question of the possible identity of both diseases has remained open. Under Neisser's direction a series of experiments were made in Batavia to give a final answer. In the first place it was found that monkeys (species of macaco and gibboo) were susceptible, and developed a disease absolutely identical with that seen in man. This disease was transmissible from one monkey to the other. It was established by the inoculation of internal organs that here, as in syphilis, a dissemination of the virus over the whole organism takes place. The inoculations with bone marrow were especially successful. Demonstrating the difference of Frambœsia from syphilis are the inoculations of monkeys first with Frambœsia, and then, after the development of the lesions, with syphilitic material. Two monkeys (macacons) thus showed the lesions of both infections side by side, an observation, that with our experience with syphilis, cannot be interpreted as two infections of the same character. Frambœsia and syphilis are, therefore, etiologically different. That they are nearly related to each other, is known by the discovery of Castellani, who found (like Schaudinn in syphilis) in yaws a spirochaete, microscopically not to be differentiated from the spirochaete pallida. Neisser has not given his attention to this side of the question, although promises to consider it in future investigations.

## DIAGNOSIS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

The Differential Diagnosis of Cancerous and Other Strictures of the Esophagus.—Marcou (*Arch. gen. de Med.*, 1906, No. 15; *Berl. kl. Wochenschr.*, 1906, No. 29).—As a means of distinguishing between malignant and non-malignant stenoses of the esophagus, Mar-

cou recommends the search for spirilla. An esophageal sound is introduced and an attempt is made to obtain thereby small particles from the neighborhood of the stricture. As cancerous ulcers almost invariably contain spirilla, the microscopic demonstration of the presence of the latter suffices to establish the diagnosis of a malignant stricture.

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The Bacterioscopic Diagnosis of Early Pulmonary Tuberculosis—C. A. Blume (*Berl. kl. Wochenschr.*, 1906, No. 29).—The almost invariable absence of cough and expectoration in the earliest cases of pulmonary tuberculosis usually prevents the demonstration of tubercle bacilli from being used as a diagnostic aid in these cases. A year ago, the writer, in a paper abstracted in these columns, recommended the microscopic examination of small particles of laryngeal secretion obtained by means of laryngoscope and bent probe. He now reports in some detail 9 interesting cases, without cough, in whom the physical examination did not suffice clearly to establish the diagnosis of pulmonary phthisis. In all of them the laryngeal mucus contained a few tubercle bacilli. He explains this phenomenon on the hypothesis that the upward current maintained in the trachea by means of the action of its ciliated epithelium suffices to transport tubercle bacilli from the lung to the larynx.

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Typhoid Diagnosis—W. Poeppelmann (*Deutsch. med. Wochenschr.*, 1906, No. 24).—After pointing out the difficulties in the way of an early diagnosis of typhoid fever, the writer presents a method of his own. Blood, obtained by puncturing the sterile finger tips, is spread in the usual manner upon absolutely clean slides. The latter are then stained according to Jenner's method and examined under a high power. Even during the first few days of the disease, unmistakable typhoid bacilli may be seen lying between or sometimes within the red corpuscles, often appearing in very great numbers and never entirely absent! This astonishing statement must for the present at least be very sceptically received.

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The Coated Tongue—L. Kast (*Berl. Klin. Wochenschr.*, 1906, No. 28).—The examination of the coated tongue as an index to gastric disorders, upon which formerly so much stress was laid, has now generally fallen into disrepute. This is probably chiefly due to the lack of evidence that the condition of the stomach can affect that of the tongue either by the direct ascent into the mouth of stomach contents (in the absence of regurgitation, eructation or vomiting) or otherwise. Kast, however, has shown that such a process actually does take place. A number of patients, all of whom were free from regurgitation, eructation and the like, were made to swallow capsules containing lycopodium powder. The mouth was rinsed with water that same evening and again the next morning. In over half the cases the mouth was found to be free from lycopodium in the evening but to contain it next morning. The conclusion may fairly be drawn, that in some cases stomach contents may gradually wander up the esophagus into the mouth and form a coating on the tongue. In these cases the con-

dition of the tongue may fairly be assumed to represent that of the gastric mucosa.

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The Chromosaccharometer—Bendix and Schittenhelm (*Muench. med. Wochenschr.,* 1906, No. 27.)—A new apparatus for the rapid estimation of sugar in the urine depends upon the principle of the Moore-Heller test. The urine which is known to contain sugar is boiled for one or two minutes with a 10 or 15 per cent. solution of NaOH or KOH. A measured amount is then placed in a small, specially calibrated tube and compared with the color of a test solution consisting of a one per cent. solution of glucose in urine similarly treated. If the color of the treated urine is that of the test solution or paler, the urine contains one per cent. or less of sugar. If darker, the urine is diluted until the color of the test solution is obtained. The degree of dilution necessary, as in Gower's Hemoglobinometer, indicates the percentage of sugar. The apparatus, it will be seen, makes no pretense to accuracy but may well be useful for routine office work.

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A New Method of Staining Blood-Spreads with Eosinate of Methylen Blue—Assmann (*Muench. med. Wochenschr.,* 1906, No. 28).—The dry unfixed spread is laid in a petri dish and covered in the usual manner with Jenner's stain. After 3 minutes, the dish is filled with 20 cc. distilled water to which 5 drops of a one-tenth per cent. solution of potassium carbonate has been added and shaken until the stain has been uniformly distributed throughout the fluid. After 5 minutes the spread is taken out and dried without further washing. This modification is said to give unusually brilliant pictures, the neutrophil granules in particular being beautifully stained.

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Functional Gastric Examination—Ahrens (*Zentralbl. f. Physiol.,* 1906, No. 6).—A balloon made of peritoneum is coated inside with a mixture of albumen and congo-red, is attached to the end of a stomach tube, then introduced into the stomach and there inflated with air. In about five minutes the secretion of gastric juice begins, the juice penetrates the peritoneal bag and, if acid, colors the congo-red blue. The bag is then deflated, withdrawn and its interior examined. Portions of the gastric mucosa that do not secrete hydrochloric acid, such as ulcers, local gastritis, carcinoma and the like may be recognized by the fact that the corresponding portions of the peritoneal film remain red. In this manner it is hoped that the exact position and extent of gastric lesions may be recognized. Good results have been obtained with dogs; examinations with human beings are now in progress.

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Diagnosis of Pancreatic Disease—Taylor (*Lancet,* 1906, No. 4322).—Destructive diseases of the pancreas are accompanied by fat-necrosis as a result of which the fat is split into fatty acids and glycerin. The latter or its derivatives appear in the urine and may there be recognized by means of Commidge's test.

# SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

INDICATIONS FOR SURGICAL INTERVENTION IN INFECTIONS OF THE BILIARY TRACT.—Deaver (*Jour. Amer. Med. Assoc.*, Aug. 11, 1906).—Deaver believes the origin of such diseases to be in some form of bacterial infection and that the calculi are merely an incident of the disease and are not universally present in diseases of the gall-bladder and bile-ducts. Of 216 patients of Deaver's, 34 had no gall-stones. Possibly the majority of attacks of biliary colic are not due to the passage of gall-stones, but rather to a spasm of the gall-bladder caused by an acute cholecystitis. Although gall-stones are very prevalent, not every one presents symptoms. Deaver is in favor of operation in every case in which gall-stones are known to be present, provided there are no contraindications which would render an operation injudicious. Those cases of acute cholecystitis which do not subside under judicious medical measures after 36 to 48 hours, should be operated on. He thinks if there is a history of previous attacks and the history leads one to think stones present an operation is nearly imperative. When the attacks of cholecystitis are repeated, discomfort persisting in the intervals, an operation is demanded in order to obtain a cure. When the attacks give rise to cystic and pyloric adhesions, which impair the motility of the stomach, operation is almost invariably demanded. The mortality is small so long as the lesions are confined to the gall-bladder. In hydrops of the gall-bladder cholecystectomy is required. Cholecystectomy is indicated in empyema of long standing when the walls are irreparably diseased. In cases of acute empyema drainage may suffice and in case of doubt cholecystostomy is to be preferred. Gangrene and perforation require excision. Deaver believes that until the physician can combat the underlying condition of infection in cholelithiasis as successfully as the surgeon he had better leave the complications of gall-stone disease to the surgeon. He protests against the indiscriminate resort to cholecystectomy in cases in which the gall-bladder is not irretrievably diseased, but in which the surgeon may consider it a useless appendage. The value of the Carlsbad cure is discussed. The relation of typhoid fever to biliary diseases should be carefully inquired into in the future.

OPERATIONS ON THE SEMINAL VESICALS.—H. Riese (*Deut. Med. Woch.*, Vol. XXXII, No. 25).—Riese reports 7 cases in which he has removed the seminal vesicals by the perineal route. Five of the cases were tuberculous and the sputum contained tubercle bacilli. The cases having been operated on 5 years ago a cure of the genital condition may be assumed. Tuberculosis of the bladder was responsible for the death of one 5 months after the operation. The infection may have been carried into the bladder through a catheter introduced through the incision. The testicles and vasa deferentia were removed with the seminal vesicals in some instances. Riese prefers the perineal route for various

reasons. Psychic troubles were not present in any of his cases. The genital functions cannot be retained on account of the severity of the lesions. In two cases where the vasa deferentia alone were diseased recovery was uneventful. In two other cases he removed the seminal cords by evulsion. In these cases miliary tuberculosis rapidly developed to which the patients succumbed.

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A Review of Fifteen Hundred Operations Upon the Gall-Bladder and Bile-Passages With Especial Reference to the Mortality.—Mayo (*Annals of Surg.*, Aug., 1906).—The cases were operated on by C. H. Mayo and the author between the years 1891 and 1906. One thousand cases were reported by Mayo before the Southern Surgical and Gynecological Society in 1904. The three important considerations in the surgical treatment of diseases are first, the mortality; second, the permanence of cure; third, the disability arising from the operation itself. There were 66 deaths in the 1,500 cases, which includes all cases dying in the hospital from whatever cause. This is manifestly an injustice to the statistics, as there are included deaths from pulmonary embolus, myocarditis and a number of cases dying as long as a month after operation from chronic troubles. In the first 1,000 cases the percentage of deaths was 5 per cent., in the last 500 it was 3.2 per cent. There were 845 cholecystostomies with a mortality of 2.13 per cent. In the last 500 cases there were 272 cholecystostomies with a mortality of 1.47 per cent. Only in one case of the entire 1,500 did gall-stones reform in the gall-bladder. Where the cystic duct is obstructed and the gall-bladder takes no part in the circulation of bile, the gall-bladder should be removed. Thick walled gall-bladders which have become functionless lead to a suspicion of malignant disease and should be excised. In common-duct surgery it is not wise to remove a functionating gall-bladder unless for direct indication as common-duct cases more often require secondary operations than any other and afford easy drainage and enabling one to do cholecystenterostomy should further obstruction occur. The average case after cholecystostomy left the hospital well at the expiration of two weeks. There were 319 cholecystectomies with 3.13 per cent. mortality. In the series of 500 cases the cholecystectomies gave a mortality of only 1.62 per cent. Mayo thinks that the field for cholecystectomies is increasing. Where the disease is confined entirely to the gall-bladder and circumstances permit of its easy removal, cholecystectomy is the operation of choice. The cure is absolute when the disease is confined to the gall-bladder. Patients usually left the hospital fourteen days after this operation. There were 207 operations upon the common-duct; 105 cases with stones present in the common-duct, but without immediately active symptoms, with a mortality of 2.9 per cent. Then there was a series of 61 cases with not only active infection of the common-duct, but involving the ducts of the liver also. There were 29 cases of complete obstruction of the common-duct with a mortality of 34 per cent. This operative mortality is very high and includes death from both early and late complications. It is often wise to wait for a period of remission in this class of cases. There were 12 cases of malignant disease with

a mortality of 33 1-3 per cent. A most interesting problem with bile-tract surgery is the coincident inflammation of the pancreas. In 86 out of the 1,500 cases the pancreas was involved to such an extent as to be noticeable on examination.

In summing up the 66 deaths, 10 to 15 per cent. were accidental and could be eliminated. The majority of deaths were due to cessation of liver function and exhaustion from chronic cholemia. Mayo urges early operation while the disease is still in the gall-bladder, where a mortality of less than 1 per cent. can be shown. With the passage of the stone in the common-duct the disease is no longer local, but fraught with grave danger from liver infection and cholemia. One patient in every six of his cases let the favorable time for operation go by.

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Consideration and Treatment of the Accidents of Surgical Anesthesia With Special Reference to Prevalent Drug Treatment.—Caswell (*Boston Med. and Surg. Jour.*, June 28, 1906).—The physiology of the heart, its relation to anesthesia, the physiology of shock and the action of various drugs proposed to combat shock and accidents of anesthesia are carefully reviewed by the author. He agrees with the views of Crile on the subject of shock and concludes that with the exception of adrenalin all drugs are useless in this condition. He recommends the intravenous infusion of salt solution with sufficient adrenalin chlorid added to make a 1-200,000 solution. Such drugs as strychnin and alcohol may be of value in surgical collapse, but better than these are artificial respiration, cold water to the face and ammonia fumes. If there is great loss of blood salt solution is indicated. In extreme cases the heart may be massaged through the diaphragm with the hand in the abdomen. As little anesthetic as possible should at all times be given, thus avoiding the above mentioned complications.

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## ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

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Report of a Case of Partial Dislocation of the Fifth Lumbar Vertebra Upon the Sacrum.—Feiss (*Amer. Jour. of Med. Sciences*, July, 1906).—The case was that of a man who had a trunk fall upon his right side pinning him firmly against a stair on the left side. After the injury he had severe pain and limped, and there was ecchymosis of the right buttock. He limbered up, but soon got stiff again, and had to go to bed on account of pain. Seen first by the author nine months after the injury. At this time he was troubled with numb feeling and paresthesia. He believed his legs were growing thinner. No bladder or bowel symptoms; some cough. There was no tenderness and no apparent displacement of spinous processes in the lumbar region. A skiagram showed an apparent displacement of the fifth lumbar vertebra, three-sixteenths of an inch to the right of the middle line, and a compression of the left side of the body of the same vertebra. He was treated by

fixation in a plaster cast, and later by tight canvas belts with a pad over the sacrum. The case shows that a partial dislocation of a lumbar vertebra may exist without complications of fracture, and that it may persist unreduced and yet with improvement in symptoms; also that fixation is probably indicated in old, unreduced cases.

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The Treatment of Congenital Dislocation of the Hip.—Kirmisson (*Revue d'Orthopédie,* July, 1906).—The author considers all the reports since the year 1900 on the treatment of congenital dislocation of the hip, by the so-called bloodless method. He first takes up all the reports made on the cases that have died during or after treatment. He then gives complete analysis of all the statistics. He concludes that reduction of these luxations under chloroform is rarely perfect anatomically by the manipulative method; but from the point of function, the results obtained are all that may be desired. As to the age most favorable for reduction, he states it to be between three and five years; also in cases where the age of the patient, or the degree of luxation, renders a radical cure impossible, subtrochanteric osteotomy allows the limb to be placed in a good position and renders the patient the best service. Appended to this article is a complete bibliography of the literature on congenital dislocation of the hip since the year 1900.

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Final Results After the Reduction of Congenital Hip Dislocation.—Nové-Josserand and Petitjean (*Revue d'Orthopédie,* July, 1906).—The authors give complete memoranda on 38 cases of congenital dislocation of the hip, made up of 24 double dislocations and 28 single dislocations, composing 52 hips treated in all. Their results were as follows: Reductions, 16; pseudo-reductions, 12; transpositions, 17; reluxations, 4; fracture, 1; doubtful results, 2. They conclude that a radical cure is rare after seven years. The most favorable age for reduction is before five years, preferably between two and a half and three years. After ten or eleven years reluxation is probable; but amelioration may be obtained in spite of this, which justifies an attempt at reduction, especially in the extreme form of deformity. It does not seem an advantage to reduce the time of retention in a plaster bandage. On the contrary, a shorter immobilization period seems to favor reluxation of the hip.

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Wrist Resection by Lateral Incision.—M'Curdy (*Annals of Surg.,* July, 1906).—In the case reported a diagnosis of periostitis of the carpal bones was clear and an operation was advised. The operation consisted of a free incision into the internal surface of the carpal bones, the incision being made palmar to the styloid process of the ulna, and extending downwards to the base of the fifth metacarpal bone. This opening is sufficiently large to admit the index-finger, bone-forceps or chisel. Through this opening all the carpal bones, except the pisiform, were removed. The wound was closed with drainage and a perfect recovery was made in two months. In another case, the operation was repeated, except that only the first row of carpal bones was removed. This operation is undoubtedly a great improvement over the operation

of Mintar, which practically means a cleavage of the anterior surface of the wrist. It is also to be preferred to Lister's bilateral longitudinal incision, and Langenbeck's dorsal radial incision, as all of these operations impair the functional usefulness of the structures about the wrist. The unilateral incision furnishes perfectly free entrance to the joint for the removal of all the carpal bones, without including in the field of operation one tendon, or an artery large enough to require attention.

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The Use of the Double-Wedge Splint in the Treatment of Fractures of the Humerus—Wilkinson (*Edinboro Med. Jour.*, Aug., 1906).—That the methods of treatment in use are not altogether satisfactory is shown by the number of pads, wedges, splints and moulded appliances found in text-books on this subject. When one considers for a moment the shape of the space between the arm and the chest wall, the reason for the failure of these appliances becomes apparent. None of them seem to take into account the fact that the forearm must be brought across the front of the chest, in order that the wrist may be slung from the neck. With the fore-arm in this position, the space left has the shape of "a double wedge," i. e., it is wider below than above, and wider behind than in front. The author's splint is designed to fill this space, and so form a firm base of support for the broken limb. This wedge is placed well up in the axilla, and secured in position by crossing the ends of a flannel bandage attached to its upper end over the shoulder, and tying them on the opposite side of the chest. An outer splint of cardboard, or plaster of paris may be used. This gives better fixation to the arm, and also fixes the shoulder-joint.

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Two Cases of Luxation of the Tendon of the Long Head of the Biceps—Berne (*Le Progres Medical*, July 28, 1906).—Luxation of the long portion of the biceps is an accident of extreme rarity. The practitioner rarely has occasion to observe the condition immediately, but sees it usually long after the injury has taken place. The author reports two cases, which were seen by him immediately after the injury. In each case a violent sudden movement of the arm in external rotation was sufficient to produce the luxation of the tendon, inside the smaller tuberosity of the humerus. This was revealed on palpation, and was easily reduced. The members were immobilized for several days, and then treated by massage and passive motion. In neither case were there fractures of the bones in the vicinity. They each made a good recovery. The author reviews the literature, and gives a description of some anatomical researches made on the cadaver relative to the production of this condition. It was only produced by forced external rotation, elevation of the humerus forward, adduction of the arm towards the thorax.

## GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

CYSTALGIAS IN WOMEN.—Rochet (*Ann. des Mal. des Org. Urin.*, July 15, 1906.)—To avoid the inconveniences and disadvantages of vesico-vaginal fistula made in the treatment of certain cystalgias, the author proposes, and has undertaken, in one case, with good results, the following procedure:

A transverse cut 1½ to 2 cm. wide is made through the vaginal mucosa a finger's breadth behind the urethral meatus. The vaginal mucosa is dissected up until the sphincter of the bladder is reached, when a section of the sphincter muscle of the bladder is removed. Because of the intimate connection of the vesical mucosa to the muscle, it is usually injured. A urinary incontinence is thus established, but as the route is not direct, the vesical and vaginal openings being distant from one another, the fistula formed will easily cicatrize. It takes some time for the sphincteric ends to unite, so that the incontinence produced will relieve the condition, the pains will disappear and the local and general condition improve. The advantages of this procedure lie in the fact that the urine does not get into the vagina, consequently cannot irritate it, and that the incontinence is not absolute, the bladder holding a small amount of urine.

Certain vesical disturbances are quite frequently observed with women, sometimes very painful and rebellious to treatment, of which the interesting point is that they arise without a clear reason, and may resemble, at least in appearance, cystitis due to ordinary causes (blennorrhea, tubercle, etc.). There are sufficiently common symptoms to classify them under the one head, "cystalgia of women." They are very rarely seen in early youth, but are found by preference in the later years of life.

In a great majority of cases the urine is turbid, and, consequently, the bladder infected, yet in certain cases the urine examined often, and with care, presents no apparent turbidity, and remains almost clear. A minute description of the differential diagnosis of these cases from those due to commonly recognized causes is given by the author.

In discussing the genital causes of bladder symptoms, he says that sometimes the bladder symptoms are dependent upon uterine disturbances, and, on the other hand, the bladder lesions may be at the bottom of the uterine complaints.

The distant origin of some of these cases is grippe, gonorrhœa, puerperal infection, gout, nervous disorders, yet the exact determining factor in the individual that makes the cystalgia in some cases and not in others is still a question of obscurity. We must endeavor to arrive at the true origin of the condition and treat accordingly. It is when the ordinary means of treatment at our disposal fails that surgery offers help. In the old and stubborn cases urethral dilations and internal sections of the sphincter are of signal service.

To meet the requirements for those cases that have resisted other treatment, the author has suggested the operation described above.

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A New Method of Anastomosis of the Vas Deferens.—Lydston (*Jour. A. M. A.*, July 21, 1906).—In spite of the over enthusiasm which attended the introduction of cord operations, it was not fair to push them aside simply because they did not fulfil the extravagant expectations of those who first advocated them. Cord operations in suitable cases have a profound influence on the innervation and circulatory supply of the prostate and seminal vesicles; incidentally a marked effect on nutrition must necessarily result. These effects are not so manifest in elderly patients, in whom the importance of sexual function is not great, as in younger patients in whom the sexual function is at its height of activity. This is an important point, for the value of cord operations has thus far been estimated from the effects in advanced prostatic disease in old subjects. These operations have not been employed to any extent in younger patients, in whom beneficial results can be more logically expected. While the author believes there is a legitimate field for the operation in genito-urinary work, he does not advocate it when there is any reasonable probability of relief being afforded by other less radical means. The operation, when properly performed, is practically free from danger. It does not produce atrophy of the testicle, a condition which, when it follows vasectomy, can be explained on grounds other than disturbed circulation and innervation incidental to the operation on the vas. It does not, in the author's experience, produce impotency, and, while the bilateral operation prevents the testicular secretion from taking its normal course, sterility cannot be charged up to the operation if the patient has been impotent prior to its performance, which is most often the case. An important point is that, while vasectomy does not produce permanent sterility, it is by no means necessary that the patient should remain sterile after the operation has accomplished its purpose. It is practicable, in probably by far the larger proportion of cases, to restore the continuity of one or both vasa deferentia at any time. Vasectomy has a certain range of application in sexual neurasthenics, spermatophobiacs, genuine spermatorrhea and pseudo-spermatorrhea. In intractable chronic protatitis and seminal vesiculitis it is of the greatest value. Its beneficial effects are due not only to the change which it induces in the circulation and innervation of the prostate, but also to the rest which it secures to the seminal vesicles. The victims of seminal vesiculitis are often so profoundly neurasthenic that no surgical procedure is likely to give relief, and in these cases especially, vasectomy should be given a trial before the major operation of vesiculotomy is resorted to. It should be remembered that the full benefit of vasectomy, even in favorable cases, cannot be expected for several months. A very important field of usefulness for vasectomy is recurrent epididymitis. In most instances the infected condition of the deep urethra on which the epididymitis depends can be corrected. In some cases, however, in spite of methodic and scientific treatment, the epididymis becomes inflamed at intervals, and disables the patient for a greater or less period. This not only occurs in young and middle-

aged subjects as a consequence of specific infection, but in prostatics, from pus or septic infection. The prevention of epididymitis in the latter class of cases is, of course, prostatectomy, but there are instances in which the patient is either too young for the operation or refuses to have it performed. Under such circumstances vasectomy may be performed, with the double object in view, of attaining such permanent benefit as may accrue in the particular case, so far as the enlargement of the prostate is concerned, and the prevention of further attacks of epididymitis. The integrity of the testicle in these cases is by no means menaced by the operation. Vasectomy has also a certain range of application in suspected or known tuberculosis, or malignant disease of the testes. Where the diagnosis is in doubt, the operation protects the patient during the period of delay in coming to a positive conclusion by shutting off the principal avenue of infection of the genito-urinary tract. When a patient with a known tuberculosis or malignant tumor of the testis declines or defers radical operation, vasectomy should be suggested. In several cases of enlargement of the prostate in which the patients were so debilitated by frequent and severity of the hemorrhages, vasectomy was successful in relieving them, or checking them altogether, thus enabling the patients to gain sufficient strength to endure prostatectomy.

The operation is done as follows: The vas is isolated from the cord and pinched up between the fingers with a fold of skin. A straight needle transfixes the scrotum just beneath the vas to hold it in position. A small incision is now made and the vas lifted out and separated from the fascia surrounding it, ligatures are placed above and below the portion to be resected, after resection the ends are touched with pure carbolic acid and brought together with catgut, the fascia replaced and the wound closed. If later it is desired to restore the continuity of the vas, as in cases of bilateral injury or bilateral vasectomy, it may be done as follows: An incision is made over the nodule indicating the site of the previous operation. The vas is separated from the cord and its enfolding fascia, lifted out of the wound, and the nodule excised. A fine, sharp probe or a long, straight needle is passed into the vas, which is bent at a sufficient angle to facilitate passing the needlle through the wall of the duct about an inch and a quarter from its cut extremity. A strand of the heaviest silkworm gut is now passed into the vas and out through the opening made by the needle. The opposite end of the gut is made to enter the distal end of the vas. The object of the silkworm gut is to preserve the lumen of the vas during the process of healing. The vas is now stitched, end to end, over the coupling of silkworm gut, the free end of the gut is passed out through the skin, the fascia carefully closed over the site of operation and the wound closed. The silkworm gut is allowed to remain in position about a week. There is very little reaction following the operation, although a certain amount of exudation and nodulation about the line of union is perceptible for some weeks after the operation.

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Some Untoward Effects of Prostatic Massage.—Stern (*Internat. Jour. of Surgery*, July, 1906).—The author reports six cases of gluteal and sciatic neuritis, the origin of which he ascribes to either reflex stim-

ulation of some nerves of the sacral plexus, or to the direct irritation of the nerve plexuses in or around the prostate gland, and consequent transmission to the superior gluteal and sciatic nerves. He believes that the pain in all of the cases is attributable to the direct irritation of some part of the nervous system. The author is not a great believer in the pathological reflex, and he disregards infection (gonorrheal rheumatism) as an etiological factor in all of the cases, because, when the patients were given complete rest for from two to four weeks and prostatic massage discontinued, the pain disappeared entirely. In the cases reported the patients varied in age from 27 to 44 years. In all of them pain developed in the perineum, nates and posterior region of the thigh, shortly after the institution of prostatic massage, the continuation of which greatly aggravated the condition. Absolute rest with, in several cases, internal and perineal sedatives, and hot rectal irrigations, was followed in all instances by recovery in 2 to 4 weeks. The author concludes as follows: The most important part of the prostate, that likely to be most involved in difficulty, the middle lobe, lying directly beneath the neck of the bladder, is that portion of the gland which does not at all benefit by massage of the organ. The prostate ought not at all to be manipulated in the presence of an acute or subacute process, and in chronic prostatitis where gonococci can be demonstrated, massage should be performed with the greatest caution. We are acquainted with numerous cases in which by massage the spreading of infection by dissemination of pathological glandular contents was ushered in or facilitated, and we have just learned that sciatica and inflammation, or irritation, of other nerves may supervene in the wake of prostatic massage. When we stop to think for a moment that, aside from the lumbar plexus and sympathetic, the prostate obtains its nerve supply from the sacral plexus, which is composed, among other nerves, of the superior gluteal, the small and great sciatic, we understand that a direct connection between prostatic manipulation and gluteal-sciatic irritation can exist.

## GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

ROENTGEN RAYS IN THE TREATMENT OF OSTEOMALACIA.—Ascarelli (*Jour. Am. Med. Assn.*, July 7, 1906, p. 46).—Ascarelli of Rome recently reported to the local medical society the case of a woman, 38 years old, with puerperal osteomalacia cured by Rœntgen treatment. The condition had grown much worse during her last pregnancy, and no benefit had been derived from any measures until Rœntgen treatment was commenced. Prolonged exposure of the ovaries to the X-rays caused all pains to subside and the menses did not recur. Ascarelli is convinced that the ovaries have become atrophied under the influence of the Rœntgen rays, although there are no means of ascertaining their exact anatomic condition.

A Plea for Operative Interference in Intracranial Hemorrhages in the Newborn.—Carmichael (*Scottish Med. and Surg. Jour.*, June, 1906.)—The writer gives Little credit for having first called attention to this group of cases. About 20 years later Sarah M. Nutt found that most of the children who before death offered the symptoms described by Little, died of an intracranial hemorrhage. This hemorrhage may be on the surface of the brain, or on its base. Surface hemorrhages in general are bilateral. Hemorrhages at the base usually are in the posterior fossa, beneath the tentorium cerebelli—surrounding the pons and medulla. Basal hemorrhages are more common in vertex presentations, internal extravasations more common in breech cases. Basal hemorrhages, as a rule, are fatal; cortical hemorrhages may be survived, the resulting symptoms being dependent upon the extent and location of the hemorrhage. A remote result is varying forms of spastic paralysis. This latter group of cases is amenable to treatment if the obstetrician immediately after delivery makes the right diagnosis. If there is the least doubt concerning the diagnosis, it is advisable to perform lumbar puncture since hemorrhage in the brain often can be detected by the presence of blood in the cerebro-spinal fluid. The operation consists in an osteoplastic resection of the skull to expose a large portion of one or both hemispheres, the removal of all extravasated blood from the cortex, and closing of the wound.

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Early Operation for Cerebral Hemorrhages of Childhood.—Frazier (*Meeting of Am. Surg. Assn.*, June 1, 1906).—Epilepsy develops sooner or later in from 30 to 50 per cent. of cases of infantile hemiplegia. In many of these cases, as has been proven by autopsies, the lesion has been a cerebral hemorrhage. The tendency toward secondary degenerative changes, such as atrophy and softening, the greater disposition in epileptic subjects toward mental defects, especially idiocy, and the otherwise hopeless nature of the disease, constitute the principal arguments in favor of early surgical intervention.

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Diagnostic Significance of Decidual Tissue.—Graves (*Boston Med. and Surg. Jour.*, July 26, 1906).—The expulsion of a decidual membrane in a patient with symptoms of pregnancy and with a mass on one side of the uterus is extremely suggestive, but not conclusive for the diagnosis of an ectopic pregnancy. Thus, e. g., an ordinary miscarriage may be preceded by the exfoliation of a part or the whole of the decidua vera. It is extremely difficult under the microscope to make a differential diagnosis between a dysmenorrhoic membrane and the decidua of an extrauterine pregnancy. The pathologist, before committing himself to a diagnosis, should insist on knowing accurately the history of the case. [This holds true for any attempt to make a clinical diagnosis from the microscopic examination of tissues.—Ed.]

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Some Points in Uterine and Ovarian Physiology and Pathology in Rabbits.—Bond (*Brit. Med. Jour.*, July 21, 1906).—In this very interesting contribution much new and valuable information is added to our present knowledge concerning the physiology of the genital organs.

A few of the conclusions based upon animal experimentation may be quoted here: The present of functionally active ovarian tissue is necessary for the uterine function, or that portion of it which is concerned with the preparation by the endometrium of a suitable nidus for the imbedding of the fertilized ovum. The normal function of the ovary, on the other hand, including internal secretion, is not dependent upon the presence of uterine tissue or the endometrium. One function of the endometrium in the anestrous state is the secretion of a saline watery fluid of low specific gravity, containing a large amount of chloride of sodium. The mechanism by which the ovary obtains its stimulus from the stimulated endometrium consequent on the occurrence of pregnancy is a circulatory and not a nervous mechanism. In all probability some substance is produced by the endometrium or by the trophoblast which reaches the ovary, and also the mammary glands, by way of the blood stream. The prevention by previous hysterectomy of the secretion of the saline solution by the endometrium favors in the ovary an overgrowth of lutein substance.

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Labor in Half-Narcosis (Daemmerschlaf).—Gauss (*Arch. f. Gynaek,* Vol. 78, H. 3, p. 579).—The writer gives in this article a detailed description of his observations in 500 confinements with the use of the scopolamine-morphine anesthesia. He experimented on 233 primiparæ and 267 multiparæ, the results being uniformly satisfactory. He usually began with a dose of 0.00045 to 0.0006 scopol. hydrobrom. and 0.01 morph. mur.; if the effect of this injection was not distinctly noticeable another hypodermic was given containing half the amount of scopolamine and no morphine. The first mentioned dose is then repeated when the patient begins to waken from her half slumber. This half anesthesia in some instances was continued for several days without any disadvantage to the patient. Thus one patient received within 48 hours a total of 0.0031 scopol. with 0.0475 morph. This anesthesia is contraindicated by the following conditions: Primary atony of the uterus, extreme debility of patient, fever, anemia and a condition of somnolence. This anesthesia seems to be free from any danger to either mother or fetus.

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## PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

Periodic Vomiting and Its Relation to Hysteria—Fischl (*Rev. Mens. des Mal. de l'Enf.,* July, 1906) says that in a certain number of cases, periodic vomitings are manifestations of hysterical origin. They present themselves either as a symptom of latent hysteria, or as the first manifestation of an active hysteria. The acetonemia which accompanies the attacks is not a sufficient reason for refusing to regard them as an hysterical manifestation. For, on the one hand, it is not rare to

find acetone in the urine of hysterical children, without gastric disturbance, in which cases the acetonuria is to be regarded as the expression of nutritional disorders inherent to the hysteria. On the other hand, there exist cases of recurrent vomiting with acetonuria in which it is impossible to deny the etiologic role of hysteria. The author has reported three such cases. In the future, therefore, the author suggests the advisability of looking for acetone in the urine of hysterical children, on the one hand, and of thinking of hysteria as an etiologic factor in cases of recurrent vomiting on the other, in order that a therapy of suggestion may be instituted.

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Periodic Vomiting in Children and Its Relation to Appendicitis.—Granfelt (*These de Paris*) says that among the diverse causes which can produce recurrent vomiting in children (neuro-arthritism, disturbance of the hepatic functions, etc.) it appears necessary to assign a place to appendicitis, particularly the cases of chronic appendicitis with several attacks. Indeed, in these cases, according to Comby, the attacks of recurrent vomiting may form the only appendicular phenomenon during long periods of time. The pathogenesis of this larval form of appendicitis is still to be elucidated. In rare cases where there are old and strong adhesions, it is to be sought in the traction which these exert on the stomach wall (Broca), more often the recurrent vomiting is only a reflex accident due to the appendiculo-peritoneal lesion.

In addition to these cases, where periodic vomiting seems undoubtedly to stand in etiologic relation to appendicitis, it would also appear necessary to admit the possibility of co-existence of the two diseases.

It is necessary to take cognizance of these facts in doubtful cases. Periodic vomiting in children, either with or without fever, and constipation, must henceforth awaken the idea of a crisis in the course of a chronic appendicitis, a point of view hitherto ignored. The disappearance of the gastric symptoms, after appendectomy could alone absolutely verify the diagnosis.

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Variations in the Fat Percentage of Human Milk.—Taylor-Jones (*Arch. of. Ped.*, July, 1906) insists upon the importance of human milk in infant feeding, declaring that the change to artificial food should not be undertaken lightly. Besides the immediate danger to the child, which at times is, of course, not great, there is always the risk of lessening the stamina of the child for later years.

If there be some disturbance to the nursing infant, the breast milk should be analyzed, unless some definite contraindication to breast feeding, like tuberculosis, be present. The fat is a most important factor of mother's milk, and a factor which is very variable. Recent investigations have shown the intimate relations which exist between the fats of the infant's food and marasmus. For the most part fat increases gradually in amount from the beginning to the end of a feeding, with occasionally a dip down at the end. There is no proof as yet that the increase is arithmetical. A baby needing more fat than it is getting can easily be put to the breast after some of the milk has been pumped out.

For details as to methods of examination and technique, reference must be had to the original article, but one point apparently established by the investigation may be noted. A fat percentage, within a few tenths of a per cent. of the average, may be obtained by taking equal specimens from the beginning and end of the feeding and examining the mixture. This is entirely practicable clinically, according to the author, and should be done.

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Lymphocytosis of the Cerebro-Spinal Fluid, in Congenital Syphilis, and Its Diagnostic Value.—Tobler (*Jahrbuch f. Kinderheilk.*, July, 1906) calls attention to the fact that cytodiagnosis of the cerebro-spinal fluid has not found as prominent a place in pediatric study as its importance warrants. It has been known for some time that in certain inflammatory conditions of the meninges, the cerebro-spinal fluid contains an excess of lymphocytes. The French school has been particularly active in the study of this question, and lymphocytosis has been found to be present in specific myelomeningitis, in tabes and in progressive paralysis. The technique of the method is not at all difficult. A lumbar puncture is made, and the fluid obtained thoroughly centrifugalized. The supernatant fluid is used for the quantitative determination of albumen if this is desired, the sediment is spread on cover glasses; fixed and stained.

In 14 cases of congenital syphilis, confirmed either by careful clinical or anatomical examination, Tobler found a lymphocytosis of the fluid in 12 cases (85.7 per cent.). In one case the result was doubtful, one case was negative. Increase in the quantity of albumen was present in 5 of 7 examined cases. The figures given are only a little lower than those ordinarily given for acquired syphilis.

It is possible that this test may offer important diagnostic aid in doubtful cases.

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## OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

The Value of X-Rays in Ocular Therapeutics.—Ring (Read at the *Ophthalmic Section, Am. Med. Assn.*, Boston, June, 1906.)—Ring draws the following conclusions:

1. X-ray therapy marks a great advance in the treatment of superficial epithelioma and rodent ulcer of the eyelids and can usually be relied on to effect a cure.
2. If unsuccessful, then electro-chemical sterilization may be utilized or finally excision with or without plastic operation.
3. X-ray treatment has proven of value in the more extensive orbital carcinomata, but it is conceded that the deeper the growth the less favorable will be the result.
4. A sufficient number of cures of sarcoma of lids and orbit have been reported to warrant its exhaustive trial in all types of this disease.

More radical operative procedures with subsequent ray applications being indicated in event of primary failure.

5. X-ray treatments usually exert an anodyn influence on malignant disease of the eyelids and orbit, but are occasionally reported to cause exacerbations of pain.

6. Noteworthy progress in the treatment of trachoma has been effected by the utilization of X-ray therapy. It should invariably be utilized if ordinary methods fail.

7. The weight of evidence indicates the positive value of X-ray treatment of vernal conjunctivitis.

8. There is evidence which points to the value of X-ray therapy in chronic conjunctivitis, scleritis, episcleritis traumatic uveitis, conjunctival tuberculosis, corneal ulceration, glioma and gummata.

9. It is believed that the rays will cure malignant disease involving the cornea and conjunctiva, provided treatment is applied sufficiently early.

10. The treatment of congenital nevi by the rays is likely to prove effective and should be exhausted before electrolysis or radical operation is considered.

11. Further testimony must be accumulated before an authoritative statement is possible of the effect of X-rays in painful types of iridocyclitis and glaucoma and other ocular diseases.

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Evulsion of an Eye During Birth.—Gad (*Ophthalm. Review*, July, 1906).—After forceps delivery through a narrow pelvis, the child bled from the left eye and the lid was found ruptured. The following day the eye was found lying loose in the orbit, having about half an inch of the optic nerve attached to it and being held only by some lacerated tissue. A scar in front of the right ear indicated the site of one blade of the forceps, so that the other blade must necessarily have taken hold on the other side far behind the eye. The forceps did not slip and were introduced but once. Total ablation of the eye has been recorded in nineteen cases. In a large majority, forceps were used and usually to a high standing head. If the forceps take hold in the occipito-frontal diameter it may happen that the tip of one blade enters the orbit and "scoops" out the eye, rupturing the optic nerve or breaks in the orbital wall so as to leave no room for the eye. There are other cases, however, in which the forceps were undoubtedly correctly applied and in which ablatio took place. Post-mortems have usually shown fracture through the roof of the orbit. The process is supposed to take place in the following way: Uterine contraction and the forceps cause an injury, probably always a fracture, the hemorrhage from which is sufficient to push the eye forwards to the level of the orbital entrance. During remission in uterine contraction or pauses in the traction of the forceps the hemorrhage and the exophthalmus increase and as the uterus and forceps recommence their work and force the head forwards, the upper lid is pressed against the wall so as to resist the passage of the head, and this pressure forces the eye out of the orbit and may be even strong enough to tear through the optic nerve and lacerate the lower lid or even tear it off. The eye is then, by the birth of the head, placed

under the zygomatic process on the soft cushion of the maxillary groove, perhaps quite detached, or it may be drawn back into the orbit by the incompletely ruptured muscles.

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A Case of Suppression of Aqueous Secretion.—D. C. Lloyd.—Owen (*Ophthalmoscope,* August, 1906).—The author reports a case in which the secretion of aqueous humor was repeatedly suppressed without any obvious pathological change in the eye to account for such a secretory derangement. A professional man, aged forty, complained of blurring of the sight of the right eye and a slight soreness on the top of the eyeball. The anterior chamber was very shallow, but the pupil was active and normal in size. Sudden movements of the eye caused subjective light sensations. Tension—2. By retinoscopy his refraction was 2.5.V.6/6. L. Eye normal. Treatment with pilocarpine, varied with atropin and dionin, was without effect. Four weeks after the onset of symptoms his sight suddenly cleared up and for some hours he could see as well with the right eye as with the left. A week later he again recovered the vision of the right eye and at once presented himself for examination. The eye now showed normally deep anterior chamber, the refraction was practically emmetropic, the cornea was bright and the vision was 6/6. Tension normal. After several more relapses permanent recovery ensued. Careful examination of the innervation of the eye and of its appendages failed to discover any departure from normal conditions.

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Persistent Hyaloid Artery in Both Eyes—Unusual Variety in One Eye.—W. T. Shoemaker (*Ann. of Ophthalm.,* April, 1906).—The author's case showed in the right eye a very delicate but long, almost invisible strand, with its free end in the vitreous and its fixed end traceable toward and even on the disk, but not quite to the central vessels. In the left eye was a large, quite freely movable apparently tubular structure which interfered at times with vision. When not in the way corrected vision in the eye was 5/5. Surrounding the apparent mouth of the tube and perhaps cystic end and running spirally around it backward was a fine sharp glistening strand or band. The proximal end was close to the lens. The distal end apparently had no attachment. Running from the forward end fan-shaped upward toward the ciliary body were three very fine threads, stretched tight and resembling guy ropes. The explanation, according to Shoemaker, is that the neural extremity of the artery has disappeared and likewise the lenticular extremity with the exception of a few peripheral strands of the vascular tunic of the lens attached to the ciliary processes. What would otherwise be a liberated persistent section of the hyaloid is thus suspended from the ciliary processes by these three strands and its posterior end is the really free end.

## LARYNGOLOGY AND OTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

A PROPOSED OPERATIVE MEASURE FOR THROMBOSIS OF THE CAVERNOUS SINUS—Longworthy (*Laryngoscope,* July, 1906).—The author's method consists of elongating the usual incision for a frontal sinus operation downward along the nasal bone. The eye is retracted out of the field and the inner wall of the orbit is removed over a considerable area together with the nasal bone on that side. The entire structures within the nasal fossa, ethmoid labyrinth and turbinates, are then curetted out. This at once brings one down on the anterior surface of the body of the sphenoid with the opening of the sphenoidal sinus in plain view. The anterior wall of the sphenoidal sinus is next to follow and also the external or lateral wall against which rests the cavernous sinus. From this point one can do considerable on the cadaver with a prick of the knife and a properly curved blunt dissector. If unsuccessful in opening the cavernous sinus, the external wound is easily closed, the eye remains uninjured and nothing is lost by the attempt.

The above operation, while theoretically correct, has this objection. On account of the internal carotid artery lying high up on the lateral wall at the superior external angle of the sphenoid, it may be opened; but an opening through the lower two-thirds of the external wall should miss it. If not successful, from the lateral wall a small opening may be made in the thin roof in the hopes of striking one of the circular sinuses which connect the cavernous, one with the other. With a moderately large opening through the orbit, one is working at all times in a good light.

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THERAPEUTIC EFFECT OF SOUND WAVES, OR MECHANO-THERAPEUTICS OF THE EAR—Blake (*Boston Med. and Surg. Jour.,* July 12, 1906).—The author's views of the therapeutic effect of sound waves upon the organ of hearing are summed up in the following conclusions:

That application of sound waves to the ear for therapeutic purposes is the application of a form of massage commensurably proportionate to the delicacy of the sound transmitting structures of the middle ear and labyrinth.

That the prolonged use of tones of excessive amplitude and very low or very high pitch, whatever their beneficial mobilizing effect upon the sound transmitting apparatus of the middle ear may be, are open to the objection of their prejudicial effect upon the organ of perception.

That mechanical reproductions of speech are open to the objection of their accentuation of overtones and their presentation of a distortion of a familiar sound picture, that of the normal voice.

That the natural voice concentrated upon the ear is, both in its range and its volume, as well as in the more general exercise afforded by its complexly compounded sound waves and the readiness with which it may be uniformly applied, the safest and, in the end, the best form of sound source for phonomassage of the ear.

Headache of Nasal Origin—Lambert Lack (*The Practitioner,* July 1906).—On investigating the cause of headache every local source for trouble should be carefully sought for. Among the local causes of headache, affections of the nose occupy a prominent position. It is important to bear in mind that patients frequently seek relief for headache alone, and may complain of no symptoms distinctly implicating the nose. Under these circumstances the nasal disorder may be overlooked. The author also emphasizes the fact that even if the headache is associated with nasal trouble, a thorough systemic general examination should not be omitted. Headache resulting from nasal affections may vary much in character, in site and degree. It may be constant or periodic. It may be described as a dull aching sensation or as a sharp and stabbing pain or as a feeling of heavy pressure. It may be localized at the frontal region, to the vertex or to the back of the head; it may radiate all over the head, even true hemicrania may be met with. There is often no characteristic feature indicating its nasal origin. Generally the pain in the head associated with nasal disease is more circumscribed and continuous than headache due to other causes. It often seems to start from, or radiate into the nose, and is often neuralgic in character. The following nasal conditions are given as causes of more or less distinguishable forms of headache:

1. Headache resulting from nasal obstruction. This being especially common in children suffering from adenoids and in adults suffering from nasal polypi or hypertrophic rhinitis. In adults headache is more common in disease of the ethmoidal region than in disease of other parts. The pain in this condition is usually of a dull aching character occurring chiefly on waking from sleep and wears off during the day.

2. Referred pain from nasal pressure. A typical example of this form of headache is that due to enlargement of the middle turbinate. The pain is referred chiefly to supra-orbital region of the same side, whence it may radiate down the nose, into the eyes and across to the opposite side. When very severe it is accompanied by pain on pressure over the supra-orbital region and over the nasal bone. This pain is often associated with suppuration in the frontal sinus, ethmoid or antrum, but occurs independently and generally disappears when the anterior head of the middle turbinate is removed. The periodicity of this pain is due to an intermittent swelling of the mucous membrane covering the bone. Large spurs or deviations of the septum pressing on the turbinates are frequent causes of headache.

3. Headaches resulting from acute or chronic inflammatory conditions of the accessory sinuses. These headaches are usually periodic. The pain commences in the morning and gradually increases for two or three hours. When most intense, discharge begins to flow from the nose and the pain slowly subsides. When due to disease of the frontal sinus the pain is usually most intense on top of the head towards the front part of the frontal bone. There may also be pain over the frontal region radiating into the eyes. When intense, the pain is accompanied by superficial tenderness over the posterior part of the frontal bone and over the innermost part of the orbit. Pain due to disease of the sphenoidal sinus is readily referred to the back of the head, radiating down the back of the neck. Pain due to ethmoidal disease may be referred

to the frontal region or situated deep behind the eyes. Pain due to antrum suppuration is more often situated over the malar bone. All these forms of headache may be accompanied by pain in the supra-orbital region, due to an associated enlargement of the middle turbinate.

PALLIATIVES FOR HAY FEVER—Cohn (*Jour. A. M. A.*, July, 1906).—Based on the observations made on himself and others, Cohn discusses the present methods of treatment of hay fever. He has found that for some individuals and in certain seasons the sytemic action of suprarenal preparations suffices to induce and preserve comparative comfort. They must be absorbed from some mucous membrane where they can escape exposure to the digestive organs. Cohn has found a tablet containing 1-20th grain suprarenalin with a small amount of sugar of milk effective when allowed to dissolve on the back of the tongue. This dose may be repeated in ten minutes or two hours as necessary. Sometimes one dose will suffice for the day. He also considers Dunbar's antipollenic serum as a distinct addition to our resources, its effects being positive in from 30 to 50 per cent. of the cases met with. He has not found it to be more than a palliative, however. In some cases where the above measures fail, relief may be aided and often achieved by the judicial internal administration of the belladonna preparations. He employs atropin sulphate or hyocin hydrobromate, the dose of either being from 1-2500 to 1-500 of a grain. The dose is repeated every ten to ninety minutes until the sneezing and running of the nose are controlled. Rules as to living and diet are also given in detail. Dark glasses also are valuable aids.

## DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

CASE OF TERTIARY SYPHILIS WHICH RESEMBLES, IN ITS COURSE AND SYMPTOMS, PHTHISIS PULMONALIS.—Fischel (*Med. Fortnightly*, June 11, 1906).—The patient, a man, age forty-six, denied the presence of syphilis. Had frequent attacks of grippe and since the last attack of grippe has not been well. His appetite failed and he lost from 75 to 80 pounds. Complained of pains in chest and slight cough and nightsweats. A tentative diagnosis of phthisis was made, though no tubercular bacilli were found, and there were no physical signs of the disease. The patient ran a temperature of 100 degrees, with rapid pulse, and complained of feeling chilly. Expectoration was muco-purulent. Upon the patient finally confessing that he had probably had an initial lesion some years previously, he was put upon a mixed treatment which finally improved his condition to a normal status of health. This case is of unusual interest on account of the rarity of the condition.

TERTIARY SYPHILITIC FEVER.—D'Amato (*Riforma Medica; Jl. A. M. A.*, July 21, 1906).—D'Amato relates the history of three syphilitic

patients who exhibited a temperature several degrees above normal, rebellious to quinin, but soon yielding to mercurial treatment. His experience shows that this syphilitic fever is liable to appear in the early stages of the secondary phase and recur again later during the tertiary phase, possibly as late as fourteen or sixteen years after the infection. The fever in the tertiary phase may be intermittent or continuous remittent, or it may change its type in the same patient. It may continue for several years during both the secondary and tertiary phases, and may be accompanied by visceral manifestations, especially in the liver. But it does not seem to be dependent upon these lesions and may occur without them. The fever may subside spontaneously, although in such cases it shows a tendency to recur. When it subsides as the result of specific treatment it falls by lysis.

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Syphilis of the Lung.—Elsworth Smith, Jr. (*Medical Fortnightly*, June 11, 1906).—The author adds one case to the literature of this condition. The case was an American waiter forty-two years old. His present trouble dated after exposure when he was taken with severe pulmonary hemorrhage. These hemorrhages occurred frequently. Four months later the author saw the patient for the first time and found the man in the hospital with a diagnosis of pulmonary tuberculosis. Physical examination at that time showed infiltration of the right lower lobe posteriorly and some rales. There was a scar upon the frenum and a perforation of the nasal septum. Examination of the sputum showed no tubercular bacilli. He was placed upon specific treatment which produced rapid improvement to a complete cure. The author gives the following points in a differential diagnosis between syphilis of the lung and pulmonary tuberculosis: (1) The establishment of the undoubted presence of a syphilitic infection and a specialty of lesions in other parts of the body. (2) The absence of the tuberculin reaction, or, on repeated examination, of tubercular bacilli in the sputum. (3) The evidence of an infiltration or consolidation of lung tissue especially seated in the sites of predilection, viz., the middle or lower lobes. (4) The effect of anti-syphilitic treatment. It must be remembered that the two diseases may co-exist.

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Alopecia in Hereditary Syphilis.—Leiner (*Archiv. f. Derm. u. Syph.*, Vol. LXXVIII., p. 239).—This alopecia occurs more frequently in the form of bands upon the scalp, localized principally upon the postero-lateral and fronto-parietal regions. This is probably caused by a diffuse infiltrating process exaggerated by the normal seborrhœa of these parts. The writer describes three characteristic cases of the diffuse and circumscribed type.

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Contribution to the Study of Pulmonary Syphilis of the Newborn and of Adults.—Ichijiro Kokwa (*Archiv. f. Derm. u. Syph.*, Vol. LXXVIII., p. 69).—The occasion of this report is the study of four cases. In syphilitic pneumonia the change is characterized by dilatation of the alveoli consectuive to inflammatory proliferation of the connective tissue, and to these is a secondary change in the pulmonary epithelium

consisting in the degeneration of these cells and abnormal proliferation. The proliferation of the connective tissue, in the first stages of the infection, is limited principally to the interstices of the lung. Later it continues to the interior of the alveoli and of the bronchi. The first causes a modification of the form by compression. Therefore the proliferation is most marked in the perivascular regions, that is, about the bronchi between the lobes and the alveoli. The lesions of the vessel consist in the notable infiltration of the upper coats. Endarteritis is rarely seen. Elastic fibres are arrested in their development.

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THE TREATMENT OF EPITHELIOMA BY MEANS OF CAUSTIC POTASH.—Van Harlingen (*Jl. Cut. Dis.*, August, 1906).—The writer believes that in a certain number of cases epithelioma of the skin is best treated by means of caustic potash. The cases best treated by this method are the small, well defined, pearly lesions varying in size from one-half to two centimeters, chiefly upon the face and adjacent parts. Large lesions are best treated by the x-ray, but here caustic potash may be used as an adjuvant, and it does not seem to modify in any degree the resultant effects produced by the x-ray.

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## MEDICAL LAW AND MEDICAL JURISPRUDENCE.

IN CHARGE OF

IRVIN V. BARTH, LL. B.

SURGICAL OPERATION ON MINOR WITHOUT CONSENT OF PARENT.—*Bekker v. Welsh et al.* (Supreme Court of Michigan, July 3, 1906), 108 N. W. 94.—Suit by father of deceased under what is known as the "Death Act." Deceased was 17 years old and lived with his father on a farm. He was afflicted with a tumor and while at home attempted to have it removed by absorption. He then went to the city with an aunt and two sisters, all adults, submitted to an examination, received some advice and went back to his father with an agreement to return later to receive the report of an expert who was to make the microscopic examination. He returned accordingly, and with at least some of his adult relatives arranged to have a surgical operation of a not very dangerous character performed. While an anesthetic was being administered, preparatory to this operation, the boy died. There was no evidence to indicate that the father had not approved of his son's going with his aunt and adult sisters, and consulting a physician as to his ailment and following his advice.

Upon these facts the court considered as follows: "We then come to the question: Are defendants liable in this action because they engaged in this operation without obtaining the consent of the father? Counsel for the plaintiff are very frank with the court, and say in their brief: 'We are unable to aid the court by reference to any decisions in point. We have devoted much time and research to this interesting question, but have been unable to find any decisions of a higher court either support-

ing or opposing the plaintiff's contention, and we will therefore have to be content by calling the court's attention to such general reasoning as leads us to take the view herein contended for.' They then argue at length and with a good deal of force, that, as the father is the natural guardian of the child and is entitled to his custody and his services, he cannot be deprived of them without his consent."

But the court held: "We think it would be altogether too harsh a rule to say that under the circumstances disclosed by this record, in a suit under the statute declared upon, the defendants should be held liable because they did not obtain the consent of the father to the administration of the anesthetics."

Note: Taylor in his admirable work on "The Law in its Relations to Physicians," published in 1901, at pages 314-315 made these pertinent observations with reference to the matter of the principal case:

"An important question of law arises, however, when an operation is performed upon a wife or upon a child, as to whether or not the surgeon must first secure the consent of the husband or parent. In a well considered case (*Janney v. Housekeeper,* 70 Md. 162) the Court of Appeals of Maryland denies that a husband has the right to withhold his consent to the performance of a necessary surgical operation upon his wife. The court, speaking through Justice Yellott, said: 'Surely the law does not authorize the husband to say to his wife, You shall die of the cancer; you can not be cured, and a surgical operation affording only temporary relief will result in useless expense. The husband has no right to withhold from his wife the medical assistance which her case might require.' Following the reasoning of this decision, one can not see why a physician should be required to secure the consent of a parent before operating upon a child, provided the child was of proper age and discretion to understand the nature and effect of the operation proposed. As there seems to be no precedent upon this particular point, the question can not be authoritatively answered until a case involving the question shall arise which the parties thereto think sufficiently important to take to a court of last resort."

In face of this dearth of authority the principal case from the Supreme Court of Michigan, following closely upon the observations of Taylor, will go far toward shaping the law involving the legal obligation of the surgeon to secure the consent of the husband or parent before operating upon the wife or child. The principle here declared seems in accord with the logic of the law.

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Evidence of Extent of Practice of Physician as Determining Compensation for Services.—*Sills vs. Cochems,* (Supreme Court of Colorado, May 7th, 1906), 85 Pac. Rep. 1007.—In an action by a physician for the value of professional services, rendered without any contract as to price, evidence was held admissible that plaintiff was busily engaged in the practice of his profession.

"The value of professional services," said the Court, "may depend very considerably upon the character and standing of him who performs them. In the first place there are diversities of gifts. The period of time passed in the profession, the experience acquired, degree of skill and

the faculty of using professional knowledge make great differences in individuals. The services of some are worth more than the services of others, because they will command more. Should a question arise as to the value of services, in an action brought by a physician to recover fees, where the nature of the services performed makes the possession of certain qualifications to constitute an important element in the value of those services, as in this case where the plaintiff was called because of his peculiar skill as a diagnostician, evidence of professional standing is clearly admissible and is entitled to consideration.

"The fact that plaintiff was extremely busy tends to show his professional standing, and tends to show, in connection with other testimony concerning the length of time he had practiced medicine in that community, his experience, which gave him the requisite knowledge and ability to properly diagnose and prescribe the necessary medicines for diseased persons. If constant practice in the art of his profession renders a practitioner more capable than he otherwise would be, the extent of such a practice is a matter which may be properly inquired into for the purpose of determining the value of the services rendered."

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Measure of Damages in Suit for Malpractice.—*Froman vs. Ayars, et al.* (Supreme Court of Washington, March 20th, 1906). 85 Pac. Rep. 14.—In an action for alleged malpractice the jury had returned a verdict for plaintiff in the sum of $5,000.00. Appellant's counsel contended that the verdict was excessive and that the measure of damages for the loss of a limb through malpractice is different from what it is where the loss is from the original injury caused by negligence. They argued that "the primary cause of the result which came to respondent was the running away of the team, for which appellant was in no way responsible, and that the degree of appellant's responsible relation to the final outcome cannot be as great as that of one whose negligence laid the first foundation for the injury."

But the Court reasoned that the theory of the case "is that the final outcome to respondent, by which he was deprived of a foot for the remainder of his life, would not have resulted if appellant had properly applied his learning and skill. It is true respondent would have suffered pain and distress from the original injury, yet, if the bones had properly united and the wound had healed, the suffering would have been but temporary, while, as it is, he must continue to suffer humiliation, inconvenience, and loss of earning power during the remainder of his life. If such a result would not have occurred but for appellant's neglect, we are not impressed that there is force in the logic of counsel's argument."

And the Court held further that the verdict for $5,000.00 for loss of the foot of a man, 44 years old, is not manifestly excessive, though his earning capacity is only that of a common laborer.

# BOOK REVIEWS.

REFRACTION, INCLUDING MUSCLE IMBOLANCE AND THE ADJUSTMENT OF GLASSES. By Royal S. Copeland, A. M., M. D., Professor in the University of Michigan, and Adolph E. Ibershoff, M. D., Instructor in the University of Michigan. Philadelphia: Boerjcke and Tafel, 1906.

This little work is the outgrowth of a conviction that a practical treatise on Refraction divested as much as possible of theoretical considerations would be welcomed by the beginner in opthalmology as a stepping stone to a more comprehensive knowledge of the subject. We believe that such a need existed and that it has been well supplied by the present volume. The book is written in very readable English and is plentifully illustrated with cuts and photographs. While such a work will serve as a guide, it must not be forgotten that the art of refraction can never be learned out of a book, but can only come as a result of months or years of painstaking work with patients.

LEHRBUCH DER FRAUENKRANKHEITEN. Von Dr. Hermann Fehling, Professor der Geburtshilfe und Gynaekologie in der Universitaet Strassburg. Dritte, voellig neu bearbeitete Auflage. Mit 229 Abbildungen. Verlag von Ferdinand Enke. Stuttgart. 1906. Mk. 9.00.

Fehling, the author of this volume, is one of the foremost exponents of gynecology in Germany. His textbook, which has just appeared in its third, thoroughly revised edition, furnishes convincing proof that he must be also a teacher of unusual ability. With justifiable pride he states in the preface of this edition, that he again has succeeded in reducing its size. This, in spite of the fact that he had to include into this new volume an account of all the more recent advances especially in operative therapy. He has succeeded in his task simply by eliminating all that which, in his opinion, has become antiquated. This certainly is a due appreciation of "the needs of the student and the busy practitioner," which we so often find mentioned in the preface of our own textbooks. A very careful perusal of this excellent presentation of gynecology is recommended not only to the student and the practitioner, but also to every prospective writer of a textbook.

THE PROPHYLAXIS AND TREATMENT OF INTERNAL DISEASES. By F. Forchheimer, M. D., pp. xvii+652. D. Appleton & Co., New York and London, 1906.

Of text-books of medicine we have more than enough. Most of them are in great part compilations, taking up etiology, symptomatology, diagnosis and treatment in routine order and what you find in one, you will pretty completely find in all the others. Forchheimer's book is, however, of quite a different sort. As the title indicates, he confines himself entirely to prophylaxis and treatment, not even referring to other aspects of disease, and this enables him to cover his subject completely and in great detail within the compass of one not too bulky volume. His therapeutic directions are quite evidently not based on the results of others, but upon his own personal experience. This gives the book a directness and a charm that is not often found in our American medical text-books. Thus the dietaries in the various metabolic disturbances, on which the best work has been done abroad, are not based on the European customs in regard to food, but upon our American habits of life. The book will be found practically useful as well as delightful reading and can be unreservedly commended.

A NURSE'S HANDBOOK OF MEDICINE. By J. Norman Henry, M. D., pp. xii+268. J. B. Lippincott Company, Philadelphia and London, 1906.

This book comprises the substance of lectures delivered by the author to the nurses of the Philadelphia Hospital. It contains such information on medicine

as is suitable for nurses with general instruction regarding the care of the sick, receipts for the diet kitchen, personal and general hygiene and the like. An index would have added to the usefulness of the volume.

WALTER REED AND YELLOW FEVER. By Howard A. Kelly, M. D., New York. McClure, Phillips & Co., 1906.

Kelly's book, inscribed to Carroll and to the memory of Lazear will remain an impressive monument longer than the pillar of stone to be erected in honor of the prematurely deceased Reed. The book is not a simple story of the life and work of the great discoverer; it is that and at the same time a monograph on yellow fever, summing up and criticising all our knowledge about the disease. The very important advances in our knowledge of this disease during the last few years is the result of the work of Reed and the men to whom the book is inscribed.

Kelly has chosen this way of glorifying the dead, not by simple praise, but by showing in a systematic and logical manner the immense importance of the work of Reed and his associates on the possibility of eliminating one of the most serious scourges of mankind. The book is beautifully written, shows deep feeling and appreciation, and contains material that will for all time be a source of information and reference. It should be read widely by the educated classes of our people.


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not been impressed by the importance, and often the difficulties, especially in critical abdominal cases, of making an immediate anatomical diagnosis. The laboratory student, seated at his well-lighted table, with his microscope at hand, his thermostat near by, his animal room, his instruments of precision, his associate workers readily accessible,—may at his leisure establish his premises and deduce his diagnosis. The surgeon—carrying the whole responsibility of life and death, of anæsthesia, of operative technique, of assistants, nurses, gauzes, and heaters, in a word, of his patient's comfort and life and of his own professional reputation—must make on the spot, from the evidence of his unaided senses, a diagnosis upon which depends the nature of his operation and its immediate and remote success. And yet the surgeon has the inestimable advantage of seeing things as they are in living physiological and pathological activity. He sees them, moreover, in their undisturbed relation with each other.

Not many years ago I was asked to operate for intestinal tumor upon a man of 57—well nourished and rather stout—upon the condition that under no circumstances was an artificial anus to be made. A surgeon is foolish to operate under conditions of any kind: if he is not trusted to do the very best he knows, unhampered, he had better decline to operate. Be that as it may, I explored a mass in the left abdomen—adherent, infiltrating, and (as it seemed to me) hopelessly malignant. This examination was wholly extra-peritoneal. The exploratory diagnosis confirmed the medical diagnosis. Later, for the relief of complete obstruction, I made an anastomosis between the *caput coeci* and the sigmoid flexure, which up to the patient's death, a year or two later, worked well. At this

*Read by invitation before the St. Louis Surgical Society, May 25, 1906.

operation the exploration was wholly intra-peritoneal, and confirmed the previous diagnosis. At the autopsy the eminent pathologist, at his leisure, in the full light of day, with everything at hand to prove or disprove his diagnosis, pronounced the intestinal cancer which he found the most favorable case he had ever seen for resection and cure.

Although always willing to admit myself mistaken, and desirous of knowing the truth, I declined, and still decline, to accept the pathologist's verdict as to operability; for that is a question which can be decided only by the surgeon who performs the operation, and who alone knows the patient's condition and what he will bear. The mass in this case was infiltrating, and the tumor was inoperable.

Though an exact diagnosis under circumstances such as I have just mentioned is difficult and often impossible, it nevertheless seems to me extraordinary that operators should make so few mistakes, as shown by microscopic examinations, without which confirmation no diagnosis of cancer is nowadays accepted. After thirty years' experience in the treatment of breast tumors, a surgeon's opinion as to the nature of the growth becomes almost infallible, especially in the diagnosis of cancer. Indeed, his diagnosis of malignancy based upon his interpretation of gross appearances alone would be to me more valuable than the diagnosis of a less experienced observer based upon the microscopic findings alone. I should never think of saving a breast when, in a doubtful case, the *tactus eruditus* said *malignant,* and the microscope said *non-malignant.* And yet, even in the accessible, well-lighted field of mammary diseases one is often mistaken in his views of malignancy and non-malignancy, operability and inoperability. Errors in diagnosis are without danger only when the benign tumor is called malignant, and the breast is therefore sacrificed. Too often is the malignant tumor called benign, and the patient, in the security of a false prognosis, allowed to drift into a hopeless condition. In doubtful cases generally the worse rather than the better prognosis should indicate the appropriate operation, especially when the operation, like a breast extirpation, if later proved unnecessary, is a safe one.

As an example of the other extreme, take those enlargements of the pancreas met with in exploration of the biliary tract, especially when there is jaundice. The essence of the whole case is a correct distinction between an impacted gall-stone and an enlargement of the pancreatic head, either malignant or benign. On the one hand is cancer of the pancreas—an inoperable and hopeless disease; on the other an impacted gall-stone or a chronic pancreatitis—both brilliantly curable. The exposure and section of the pancreatic mass necessary for exact diagnosis cannot be made without grave danger. Between these possibilities the surgeon must decide immediately, often without any but the hastiest palpation; for he must make up his mind whether to continue or to

abandon his operation; whether to explore the pancreas and the common duct, to drain or extirpate the gall-bladder, or whether without further delay to close the abdomen. His patient's life and future depend upon an accurate interpretation of the anatomical conditions found; aided by a previous thorough study of the case.

I have been especially interested in this subject now for ten years: the importance of it has been impressed upon my mind by hundreds of cases, particularly abdominal ones. In my clinical teaching at the Harvard Medical School I urge upon the students the importance of familiarizing themselves with evidences of disease as interpreted by the senses, especially at the operating table.

The method of procedure in surgical operations depends, of course, in every case upon the diagnosis. If the diagnosis is made before operation, it is frequently wrong, as shown by the very first incision; and this in spite of the greatest knowledge, skill, and experience, with every aid that the laboratory affords. Take again, for example, breast tumors. The diagnosis is made beforehand with great accuracy, and this diagnosis is verified or disproved by the microscopic laboratory report and by painstaking investigation. The number of errors in diagnosis though small—I have found after an experience of nearly a thousand breast operations—is yet large enough to show that there is no absolutely sure and safe way of making a diagnosis of breast tumors before operation. Though we are able to demonstrate the presence of cancer, for instance, if the specimen removed by the knife or by the punch includes a characteristic section of the tumor, our diagnosis may be entirely wrong if for any reason the exploration does not reach a characteristic portion. In such cases deplorable and preventable errors in diagnosis may result; for the surgeon relies upon a section which did not find the tumor itself, and the patient goes without operation until there is a hopeless cancerous infiltration. Another disadvantage in this method is that if a free section of the tumor is made immediately prior to the removal, there is danger of extensively infecting the wound with the disease. Hence the importance, in the removal of breast tumors, of knowing at a glance the probable nature of the growth.

In explorations of the stomach the surgeon may easily be deceived as to the nature of the tumor which he finds, and either subject his patient to a needless operation or refuse him an urgent one. Unlike the extirpation of breast tumors, unfortunately, that of gastric tumors, in the hands of the average operator at least, is extremely dangerous. A few years ago I resected the pyloric end of the stomach for stenosis which was found on exposure to be caused by a hard, irregular mass confined to the stomach wall. In my opinion this was clearly malignant. The microscope, however, showed the mass to be the result of an old ulcer and, beyond dispute, benign. The operation of choice was a gastro-

enterostomy; the operation indicated and performed under the wrong diagnosis was resection and suture. Death was the result of too great tension on the suture line, which gave way suddenly during a favorable convalescence. Here is a case which illustrates better than any other the importance of familiarity with the characteristic *living* and *undisturbed* abdominal pathology. The experience gained in this one case has prevented other errors quite as bad. In abdominal cases the difficulty in making a diagnosis upon which the progress of the operation entirely depends is at times almost insuperable. The importance of making it correctly is great in all cases, but it is greater in some diseases than it is in others; for some organs, like the appendix, should be removed when the anatomical changes are trivial; whereas others should be preserved—for example, the ovaries—unless the evidence of disease is conspicuous and unmistakable.

Thus far in the development of abdominal surgery, especially gastric, the diagnosis, when operative treatment has been first seriously considered, has been clear, for the disease has progressed to such advanced stages that its nature has been unmistakable. But in modern surgery we are, fortunately, no longer waiting until the diagnosis of cancer, for example, is stamped upon a man's very complexion: we are attacking diseases at their inception. Indeed, we are daily removing organs in which there are few if any perceptible anatomical changes. Though some of this work is undoubtedly unnecessary and to be condemned, most of it is praiseworthy. In order to avoid, on the one hand, the errors of over-hasty operating, and on the other, those of pernicious procrastination, we must, first, make an early diagnosis to justify exploration; and secondly, have an intimate acquaintance with anatomical appearances during life to indicate the appropriate operation. And yet, however great one's experience, there will always be some doubt as to the significance of physical appearances, even when the organs are fully exposed. The surgeon will reduce this doubt to a minimum only by devoting himself, on every possible occasion, to the study of normal and diseased organs and their connection with previous symptoms. He will be especially careful to study histories in convalescent patients, after demonstration of their lesions, just as he will be careful to study anatomical conditions after a thorough investigation into their histories.

And, after all, what does the operator want most to know as he exposes the field of exploration? Not so much the physical conditions of disease in advanced stages, as those of disease in its very inception. He must interpret correctly delicate as well as gross changes. Many questions will arise which will more than test his knowledge.

What, for example, is a diseased appendix, and what is a diseased gall-bladder? In what consists the difference between gastric cancer and gastric ulcer, especially between the early stages of the former and

the late of the latter? What is the meaning of a pylorus which between the thumb and fingers suggests a neoplasm, but which, on being incised, shows nothing? Is it a physiological thickening; a muscular contraction; a vascular engorgement dependent upon its being alive; an evidence of normal physiological activity which disappears and is never felt in the cadaver? I admit my ignorance of a true explanation. How does a diseased pancreas feel? In what way does a chronic pancreatitis differ from cancer of the pancreas? How shall we be able to distinguish between a gall-stone embedded in the canal of Wirsung and not obstructing the biliary stream, and a tumor of the head of the pancreas. No one but the surgeon can appreciate the feelings of the surgeon when he is confronted with problems like these. For example, I once found, at an exploration of the biliary tract for painless jaundice, a stone about the size of a filbert (in other words, about the size of an ordinary gall-stone) in the head of the pancreas. I examined repeatedly, and asked my assistant to examine, in order that we might tell, if possible, whether this was a malignant nodule in the pancreas, a gall-stone obscured by embedding tissues, or a localized area of thickening such as is usually regarded as chronic pancreatitis. If it was a gall-stone, removal was demanded; if cancer, attempt at removal was unjustifiable; if chronic pancreatitis, drainage of the biliary passages was indicated. It was decided that the nodule was malignant, but that there was a hopeful possibility that it was only a chronic pancreatitis. To relieve the jaundice and the possible pancreatitis, a cholecystostomy was performed. The patient did well till, at the end of two or three days, he began to bleed from the depths of the wound—a complication of jaundice, in my experience almost invariably fatal. The anxiety about the diagnosis became even greater than before, for if the lesion were a gall-stone, nothing had been done to remedy it, and the patient was dying of a useless exploration. At the autopsy there was found in the pancreas a nodule of cancer which completely obstructed the common duct. The family were perfectly satisfied by the assurance that nothing would have remained for this vigorous, active man, had he lived, but a lingering death, with sufferings aggravated by a permanent biliary fistula.

In one of my early cases of chronic pancreatitis, I made the hasty diagnosis of cancer of the pancreas from the enlarged and irregular head of that viscus. As there were gall-stones in the gall-bladder, I performed a cholecystostomy. Mayo Robson, to whom I described the case soon after, suggested a chronic pancreatitis—a diagnosis which was proved correct by the complete and permanent recovery of the patient.

Another illustration of the difficulties of making a correct diagnosis is that of a patient who died of uncontrollable nose-bleed after an exploration of the biliary tract and of the liver. One of the assistant surgeons at the Massachusetts General Hospital had found in the right

lobe of the liver what seemed to be a malignant mass, and therefore closed the abdomen. As the jaundice in this case continued after operation, it seemed to me that there might have been a remediable mechanical cause, which a secondary exploration would relieve. Prolonged and painstaking study of this case—before, during, and after operation—never gave even a hint of the real lesion which autopsy, after death from uncontrollable nose-bleed, showed to be an hypertrophic cirrhosis. What greater responsibility could have been thrust upon a surgeon, even the most experienced, than the interpretation of the anatomical appearance in this case?

As in the liver, so in the spleen—though far less frequently—it may be of the utmost importance to interpret correctly the size, shape, consistency, color and lustre. Without examination of the blood the diagnosis of splenic tumors will be made only with the greatest difficulty, not only from the lack of characteristic appearances, but from the rarity of splenic tumors. I have published one splenectomy which I performed for splenic tumor without blood examination—a case in which the diagnosis proved, from examination of the blood, leukæmia. A tuberculous spleen has gross appearances sufficiently marked for diagnosis, but in my cases it has been associated with general peritoneal tuberculosis. The appearances and the feel of the spleen in typhoid cases operated upon under mistaken diagnoses may be of value, especially in the early stages.

So in the surgery of pelvic diseases the surgeon must be able to distinguish between malignant adenomata of the uterine body and degenerated polyps; between anæmic fibroids and uterine sarcomata; between malignant and benign affections of an ovary but slightly enlarged; between a normal and an abnormal pregnancy; between pregnancy and all other pelvic conditions.

The study of pathological conditions in the dead has an educational value which can hardly be overestimated; opportunities for such study should never be neglected; but it is upon the study of the living that the surgeon must chiefly depend in making those nice distinctions which are based upon the color, the shape, the consistency, and the lustre of organs just as he sees them at the time of operation. Even the sense of smell may prove a valuable guide to him. The odor of an abscess caused by a gangrenous appendix, for example, is so characteristic that when the abscess is situated in the epigastrium, between the liver and the diaphragm, in the depths of the subphrenic space, or even in the pleural cavity, its possible appendicular origin is immediately suggested. Time and again I have been led to the correct interpretation of the lesion by this sense alone.

In the determination of a peritonitis, and in the search for the correct lesion, we find of the greatest importance the color of the intestine, its

distention and distensibility, its translucency and transparency, the color, consistency, and odor of the free peritoneal fluid.

A correct diagnosis of peritonitis, or at least a determination of a strong probability of infection in its early stages is invaluable, for upon it depends the selection of operative measures. The most distressing calamities of abdominal surgery—because the most frequent, and, theoretically at least, the most avoidable—are the fatal peritoneal infections. I am convinced that these evil results are in reality avoidable, but whether humanly avoidable, I am not so certain. When in a series of similar operations, hysterectomies for example, performed under similar conditions upon the same day—with the same operator, assistants, instruments, *materiel,* and environment—the case which is perhaps the most favorable of all proves fatal from peritonitis, it is a fair question whether in the fatal case there were not elements of infection in the pathological condition itself which were undiscovered and unsuspected. It is a question, too, whether a greater experience in such cases, studied from the point of view of this communication, might not have detected and avoided the danger.

In acute abdominal conditions the recognition of general peritoneal infections is essential to settle the question of drainage, unless one does not believe in drainage for general peritonitis. I look upon drainage as so essential in general peritonitis that I drain even when there is only a probability of infection. And yet drainage has such disadvantages—through adhesions, intestinal obstructions, sinuses, fæcal fistulæ, and other minor evils, that it should be employed as sparingly as possible. Between drainage and non-drainage in cases of suspected infections the choice is overwhelmingly in favor of drainage, in spite of its disadvantages.

Nothing can be more characteristic than the anatomical appearances of a peritonitis under full headway; nothing less characteristic than one just beginning. Even when there is a turbid serum with injected peritoneum, the cultures often prove sterile. I am inclined to think that an infection is sometimes present in serious form with few, if any, visible changes in peritoneum or peritoneal fluids.

In regions other than abdominal the necessity for an absolutely accurate diagnosis is emphasized. In many diseases, exploration is indicated and radical operation demanded even if the exact diagnosis is in some doubt. When operation sacrifices a limb, a feature, a useful organ —the thigh, the eye, the testicle—the horrors of mistaken diagnosis and the importance of accuracy become manifest.

In a disaster of this kind—in the responsibility for which I shared—a patient lost the left lower extremity through an error of diagnosis. It was a question of amputation at the hip joint for osteo-sarcoma of the femur. Many surgeons concurred in the diagnosis, but there was some

doubt. This was before the days of the X-ray, and the case was studied perhaps even more carefully on that account. The disease proved to be benign: the operation was therefore not essential to life. Perhaps little harm was done, for the femur was of no real value in standing or walking. The operator—a man of strong conservatism, of the best judgment and the highest skill—amputated. The tumor had every gross sign of malignancy, and yet it was not malignant.

The lesson in this case, and in similar cases involving the extirpation of valuable organs, is to make a section for microscopic examination, in spite of the dangers of auto-infection; for in such rare tumors gross signs are not observed frequently enough to make the diagnosis positive.

A more accurate idea of the tumor may be gained by careful dissection of the tumor, with free exposure to sight and touch, and with thorough search for infiltrations and metastases. Unless the tumor is actually cut into, there is little danger of auto-infection. Sometimes the nature of a doubtful abdominal tumor can be told, especially when the abdominal wall is thick. by cutting down as far as the peritoneum without opening it. When separated from the fingers only by the peritoneum, the tumor can often be immediately diagnosticated, and that without the danger of opening the peritoneal cavity. The distended gall-bladder can often be felt as soon as the abdominal wall has been cut as far as the peritoneum—without opening of the peritoneal cavity. One is sometimes brought into the closest relation with the lesion, and yet separated from it by a thin layer of tissue sufficient to mask its nature or even its presence, when a slight extension of the cut, or the safest possible dissection, would strike at once the disease.

In one instance failure thus to demonstrate the diagnosis in a perfectly curable case led to an unnecessary operation, to months of intense suffering, and a painful death. In this case the patient had an enlarged prostate, to which was referred his great suffering. Repeated searchings of the bladder by the ordinary means showed no stone. The treatment for this disease then in vogue gave little relief. Finally, arose the question of operation by castration or supra-pubic cystotomy. I had become so favorably impressed by the precision, certainty, and efficacy of the supra-pubic route to the bladder that I had already had the patient placed in the Trendelenburg position, and stood knife in hand ready to make the incision. Something, however, unfortunately, changed my mind, and I decided upon castration; and yet, as I hesitated between castration and supra-pubic cystotomy, my knife blade was separated from a large stone encapsulated in the superior wall of the bladder only by the thickness of the abdominal wall. The man improved after castration enough to help swell the favorable record of that miserable procedure; but the improvement was only temporary and he died at the end of a few months after great suffering. It is a question whether in this case a diagnosis

without exposure of the field was possible. But the lesson is that, under certain circumstances, the importance of anatomical appearance *demands* an exposure of the field; and, indeed, of the supposed lesion, whatever the diagnosis, especially when that exposure is one of the steps of the radical operation.

In this case the possibility of stone was from the beginning considered. The error lay in relying upon the absence of grating transmitted to the sense of touch through the sound. This patient had a lesion that would have been unmistakable had the bladder wall been brought within reach of the finger; but the enlarged prostate seemed so adequate a cause for frequent painful micturition that the possibility of a stone was, if not overlooked, disregarded. The error belongs to a large class, dependent upon a strong preconceived idea. The lesson is to beware of being too positive in an apparently simple diagnosis, when every confirmatory method of examination has not been employed. In bladder cases especially one should not neglect cystoscopy when there is the least doubt, especially if the alternative is a dangerous or a mutilating operation.

*This paragraph I wrote on the train on my way to the Milford Hospital, where I was to operate for enlarged prostate upon a patient whom I had never seen. At the operation I found a hard, irregular prostate which suggested cancer. The man was in good condition. He assured me that his suffering was so great that life was not worth living. Having the case just mentioned strongly in mind, I was determined to be sure of the condition of the bladder by supra-pubic incision. On the left side of the bladder was a large ulcer, soft and bleeding. A small fibroma obstructed the free outlet of the bladder. There were several nodules in the prostate. The main trouble was, however, this large ulceration. The hemorrhage was excessive and difficult to control. I curetted extensively the ulcer after exposure and left in three gauze wicks and a large tube for drainage. On reflecting upon this operation I suddenly realized that I had not employed one of the safest and easiest means of diagnosis—cystoscopy, the results of which might have contra-indicated the operation. I was satisfied, however, that I had given the man the best chance, for this demonstration gave me the very best opportunity of making the diagnosis and of remedying the lesion; and yet the anatomical appearances were far from characteristic. The irregularities in the prostate—judging by the fibroma which I removed—may have been multiple fibromata, for the prostate felt exactly like a small uterus with here and there a subperitoneal fibroid. The ulceration of the bladder had none of the characteristics of cancer: it was simply a superficial ulceration. The laboratory report was, however, *cancer*.

Even with the cystoscope the diagnosis is uncertain. I have several times had occasion to doubt the conclusions of an expert, and have proved by supra-pubic cystotomy his error. It seems best, therefore, especially in doubtful cases, to employ in the beginning the only method which is unerring—that which permits the direct, unimpeded employment of the senses of touch and sight. This course is especially desirable when the results of cystoscopy are discouraging, as when cancer of the bladder is thus diagnosticated.

The anatomical diagnosis in the great majority of cases simply confirms to a surprising degree the clinical. In some lesions the precise diagnosis must be regarded as a guess rather than as an inference correctly drawn from accurate data. Considering the difficulty of establishing the premises, it is indeed astonishing that the inferences, or even the guesses, are so unerring. In those internal diseases in which the diagnosis depends very largely upon a correct interpretation of the history and in which there are few, if any, physical symptoms, the percentage of errors is the largest. The surgeon who demonstrates upon the living the direct connection between symptoms and anatomical conditions, must sooner or later make the most accurate diagnostician,—just as in the past the clinician whose education has been based upon normal and abnormal anatomy has made the most accurate observations and the most correct deductions.

Of all abnormal internal abdominal conditions I find the fewest mistakes in the diagnosis of appendicitis; next, in that of gall-stones; and last, in that of diseases of the epigastrium. The nearer we can approach the disease with the fingers, the smaller the number of mistakes. Hence the extraordinary accuracy of deductions in pelvic disease. But even in a field so accessible to bimanual palpation as the pelvis, I find by no means infrequent such errors of diagnosis as the confusion of an ovarian cyst and a fibroid tumor; of a normal and an abnormal pregnancy; of a salpingitis and an appendicitis. Most of such errors are owing to rigid abdominal walls. I have often corrected a false diagnosis the moment the relaxation of anæsthesia has been complete. Hence the importance of renewed bimanual examinations before making the incision.

In my introduction I have mentioned several cases which show the weight of responsibility resting upon the surgeon, who has to decide upon the spot the nature, the extent, and the operability of the lesion demonstrated. This responsibility can hardly be appreciated by those who have never borne it. Upon the correct interpretation often depends not only the welfare of the patient, but, in many instances, the reputation of the surgeon.

Of late years I have taken the opportunity presented by abdominal operations to ascertain as correctly as possible, for the benefit of the patient, the condition of all abdominal viscera. Information of this kind, to be of value, must be based upon the surgeon's ability to detect, with his fingers alone, any variation from the normal. Some lesions are easy of detection; others are difficult; still others, impossible. The surgeon must be as sure as possible of his diagnosis before committing himself to a definite opinion, especially of serious disease or of absolute hopelessness. He has no right, therefore, to inform the patient or his friends of the existence of abnormal conditions which he thinks he has discovered, but of which he does not feel absolutely

certain. I have become convinced, for example, by a very large number of manual explorations of the right kidney, that, in the average patient, the lower edge of the kidney can easily be brought to the brim of the true pelvis. I should not, therefore, feel justified in telling a patient that she had an abnormally movable right kidney from this mobility, because, as I say, in most patients it seems to be the normal. Observations upon the mobility of the kidney at the autopsy table are, of course, of no value; for the solidification of the paranephric fat prevents any mobility whatsoever. I should not feel justified in saying in a given case that the disease was cancer, or that the outlook was hopeless, unless the evidence was incontestable. Even in evident cancer and probable hopelessness, one has no right to predict to a patient or to his friends an absolutely irremediable lesion. Such predictions have caused much useless suffering. The experienced surgeon, even in the strength of his conviction, must base a ray of hope upon human fallibility. I have seen so many errors of diagnosis, especially as to hopelessness, that I feel strongly upon this point. The following case is illustrative not only of this but of other points of this paper:

In the case of Mrs. X. (Vol. 49, p. 51), I performed a hysterectomy at the Corey Hill Hospital for multiple fibro-myoma (Dr. W. F. Whitney). Later my assistant explored for apparently a recurrent tumor. He found what he supposed to be hopeless malignant infiltration of the deep pelvis, and he so reported to the family. A few months later I saw the patient and on bimanual examination without ether was unable to find the least abnormality. The patient recovered, and upon her recovery has been based a cancer cure which is spreading now over the whole country! The remedy advertised to have cured a patient who had been given up by the surgeons was used by its inventor from the moment of hopeless prognosis; and if the diagnosis of hopeless cancer, based upon gross demonstrations alone, was correct, the patient's condition, now two years later, is indeed remarkable.

In the interpretation of gall-bladder appearances so many difficulties will be met with that the surgeon may well repeat the question, "What is a normal and what an abnormal gall-bladder?" In apparent health the gall-bladder, undisturbed, is hard to find with the fingers; distended, it is characteristic to the touch. A lax gall-bladder, hard to find, is, I think, normal. The distended gall-bladder is also normal if pressure empties and softens it. The sensation of beginning collapse under the pressure of the fingers is characteristic and recognizable. It means an open cystic duct and a normal gall-bladder, stored to its utmost capacity with bile. Yet distention is a conspicuous condition of diseased gall-bladders. To distinguish between the distention of a normal and of a diseased gall-bladder is difficult; but I think it can be done by the edu-

cated fingers alone. A gall-bladder so tense that the fingers make no impression upon it, is undoubtedly abnormal and has a stone impacted at its outlet or in the cystic duct. There may be one or more stones imperceptible to the touch, because the fingers cannot be brought together against the resistance of the distended gall-bladder walls. In a recent case (Vol. LXII., page 57) I was unable to feel a small stone through the thickened, but not otherwise changed gall-bladder wall until the gall-bladder had been drawn outside the abdomen! Stones in the pancreas, or high in the fissure of the liver, are so difficult of detection that one can never be sure either of their presence or their absence. Even by means of a sound introduced into the hepatic duct, the operator cannot be certain that he has not overlooked a stone. When the experienced touch detects a gall-stone, elsewhere perhaps than in the pancreatic portion of the common duct, there can be, I think, no possibility of mistake.

From the gall-bladder and ducts, the examining hand seeks the pylorus, the stomach, the liver, the spleen, and the pancreas. From my own experience I should say that the pancreas varies so extremely—especially as to size and consistency—that deductions of value are very difficult to make; yet there is no excuse for inexperience in palpating the pancreas, for the education of the touch as to its condition can be made nearly if not quite as well on the dead body as it can on the living, the only difference being in the absence of vascularity.

These remarks apply also to the pylorus. Through a characterisitc cancer of the pylorus or of the pancreas is unmistakable, beginning malignancy is not. I admit my own inability to tell always on the living body what is and what is not a strictly normal pylorus. This was first impressed upon me by an operation some ten years ago. The case was one of Dr. Fitz's, and there was a strong suspicion of disease of the pylorus (O. R., Vol. 24, page 48.) After thorough digital examination, it seemed to me that there was an abnormal growth in the pylorus. There were also extensive adhesions about the pylorus, gall-bladder and liver. I could not assure myself of the necessity of opening the pylorus, but I separated thoroughly all adhesions. The patient was much benefited by this operation, and his subsequent good health proved the absence of a neoplasm.

If it is difficult to tell by the sense of touch alone the condition of the pylorus, it is equally difficult to tell that of the body of the stomach and of the cardiac end. I refer, of course, not to those conditions of the stomach in which disease is unmistakable, but to those in which there is a question of disease, and in which the anatomical changes are not pronounced. The greater portion of the stomach, both anteriorly and posteriorly, can be exposed to sight through the high abdominal incision. In many cases a large portion can be drawn out of the abdominal wound.

where it may be thoroughly examined. In some cases it is justifiable to make an exploratory incision through the stomach wall in order that the internal surface may be touched and inspected. The posterior wall may be demonstrated through the omentum.

I have observed not infrequently two variations from what I conceive to be the normal stomach—variations in position and in vascularity. The stomach is so often below the umbilicus, even with the patient in the Trendelenburg position, and without gastric symptoms either before or after operation, that I have wondered whether so low a position had any significance—pathological, physiological, or anatomical. Is a stomach thus situated dilated, displaced, or in any way pathological? Does it indicate any mechanical measures when met with unexpectedly? Does it justify interference, as does a diseased appendix discovered accidentally? I have deemed my duty done when I have recorded the facts and upon them have based renewed inquiries into the history.

A second condition is that of excessive vascularity. In a recent hysterectomy for uterine fibroid in a woman of 68 (Vol. 62, p. 59) the stomach was large, full, and pink; the superficial arteries were injected and the whole organ extremely vascular. There were gall-stones in the gall-bladder and some adhesions. Vomiting had been a conspicuous symptom, and there had been pain. Operation upon the gall-bladder and the pylorus, after a hysterectomy upon a patient of 68, seemed to me injudicious. What was the lesion, if any, and what ought I to have done?

A third condition is that of firm distention, even after the dietary preparations for anæsthesia. This distention is one which suggests to the touch the unyielding distention of the gall-bladder already mentioned. I think it has no pathological significance, for the operations during which it was discovered were in no way complicated by gastric symptoms.

By examination of the pancreas, the pylorus, the cardia, the whole abdomen, at every autopsy, the surgeon can educate to great perfection the sense of touch. The most that can be said of the examination of abdominal viscera taking place during abdominal operations—examinations which must necessarily be brief—is that gross changes from the normal can thus easily be detected; after long experience a slight abnormality can with considerable accuracy be determined.

The diagnosis of diseases of the gall-bladder or of the biliary tract dependent upon gall-stones is in many cases so plain that we undertake operation with great confidence. Given the characteristic pain of gall-stones, followed or accompanied by a tender or perceptible gall-bladder; with a history extending over a number of years; without cachexia, loss of weight, or other evidence of malignant disease,—one can be so positive in his diagnosis of gall-stones that the question of exploration for anatomical diagnosis need hardly be considered. And yet, even with so characteristic a history and physical examination as this, the surgeon

will now and then be surprised to find that the case is not one of simple gall-stones, but one of advanced and extensive infiltrations, so suggestive perhaps of malignant disease that the question becomes one of abandoning as hopeless an operation which, if the diagnosis of gall-stones is correct, is essential to life.

Now if we may find such extensive pathological changes when the history and signs indicate operations of ease and safety, what may we not expect to find when they indicate operations of difficulty and danger? The fact is that we shall find operations of ease and safety when we expect difficulty and danger quite as often as we shall find difficulty and danger when we expect to find ease and safety.

When gall-stones formed in the gall-bladder first begin to cause symptoms; when operation promises the best results with the least danger,—the diagnosis of gall-stones is dependent upon a history so obscure and so far from characteristic that the operation is undertaken with many misgivings as to its real necessity. Indeed, were it not for the almost invariable accuracy of the diagnosis, even in these cases the surgeon would hardly feel justified in exploring the right upper quadrant as often as he does. He seldom errs as to the cause of symptoms, though he may underestimate the extent of the pathological changes and the risks of operation, for even in the cases thus far regarded as atypical and obscure, gall-stones overwhelmingly exceed in frequency all other lesions combined. The diagnosis of gall-stones, however, resting as it does almost invariably upon pain in some form, with no confirming physical signs, can be demonstrated only by actual digital exploration. The detection of gall-stones, essential as it may be to the selection of operative methods, is much less important and less difficult than the demonstration of their absence.

In exploring the right upper quadrant the surgeon opens the abdomen by an incision just large enough to admit a finger, by which in most cases, fortunately, a gall-stone is found in the most favorable position for its removal—in the gall-bladder itself. In not a few cases, however, a single finger cannot thus detect a stone in the gall-bladder, even if that viscus is loose and soft. Indeed, in many of his cases the surgeon will find, with the single finger, no evidence of gall-stones anywhere in the biliary tract. This fact does not, however, show that there are none: it shows simply that the surgeon cannot, with the single finger, eliminate the possible presence of a gall-stone. Two fingers—the first and second—are then introduced. Between these two fingers—practiced in this exploration—he can get the lower part of the gall-bladder, the cystic duct, the hepatic and common ducts. He may then detect the gall-stone which he could not detect with the single finger. If he feels no stone, the incision must be enlarged sufficiently to admit the whole hand. This enlargement of the incision has the serious disadvantage of causing

injury to the motor nerves of the right upper quadrant and of increasing the liability to hernia, which is quite common in this region. In spite of this disadvantage, the necessity for absolute demonstration, especially of the absence of gall-stones, demands the manual exploration. Even when gall-stones are demonstrated in the gall-bladder with one or two fingers through a small incision, the experience of recent years has led me to fear that there may be also one or more stones in the hepatic and common ducts, in spite of the absence of jaundice. It is only in the earliest, simplest and plainest cases that I do not make a cut long enough to admit the hand. As a matter of routine, however, the long incision will in most cases be used. The hand seeks first the foramen of Winslow, as the starting point. It thence proceeds toward the liver and hepatic duct, the gall-bladder and cystic duct, the pancreas and the common duct, and finally, the duodenum and the pylorus. The not infrequent discovery of an unsuspected stone which would otherwise be overlooked will abundantly reward the trouble of search. Even after the most painstaking palpation the surgeon will occasionally overlook a stone high up in the hepatic duct. Stones in this duct may often be undetected; those in the common duct or in the cystic are never undetected. To be as sure as possible, the surgeon must open the hepatic duct and explore with probe or forceps, or wash out under pressure through a soft catheter. Even with these precautions, a stone may escape detection.

There may be, as I have explained, a nodule in the pancreas which will suggest an embedded gall-stone. This fact will not escape notice.

Do I need to say a word about the necessity for the most careful education of the fingers in this task? Palpation upon the dead is quite as instructive as upon the living, and the chance for complete verification is always at hand. There is no excuse for ignorance on the part of any one —physician, surgeon or student; and yet how much time is devoted to this special form of clinical instruction? Very little, I am sure. It is a method of instruction that ought to be followed on every occasion. Every autopsy could be utilized to instruct in palpation a hundred students. By making the appropriate incision, the normal tactile impressions of every abdominal area could be taught time and again, and still again, until the student would have an idea of abdominal palpation which would be of the utmost value.

The usual course in abdominal examinations should be, first, a small opening for digital exploration. In many cases a single finger suffices for a diagnosis of inoperability. The danger in the examination depends upon the amount of stirring up the exploration causes, upon the nature of the disease, and upon the patient's strength. I have known of not a few deaths from the touch of a single finger. When the hand and arm are introduced, the danger of an exploration which accomplishes nothing beyond a demonstration of hopelessness or inoperability, is con-

siderable. Once the exploration is undertaken, it must be made thorough, in spite of the dangers. In most cases, therefore, the single finger will not suffice.

Inspection may add the lacking evidence when touch has revealed a lesion, but has not shown its exact nature. Even when touch is negative, variations from the normal may still be perceptible to sight. Within the last year in not a few cases I have found in the gall-bladder and in the bile changes which accounted for symptoms supposed to be caused by gall-stones. These abnormalities were variations from the normal gall-bladder in color and in translucency, but not in consistency, size, or shape. The changes in color and translucency led to exploration of the interior. In all cases the bile was thick, tenacious, and black. Changes from the normal were owing to a chronic inflammation of the gall-bladder, with so-called inspissation of bile—a condition of things which, I have no doubt, precedes—in many cases, at least—the formation of gall-stones. Drainage was followed by brilliant recovery.

When digital and manual exploration is completed, especially when the results of tactile examination are uncertain, the field should be carefully inspected. Changes in color, lustre, vascularity, translucency, and in general appearance will at once be conspicuous, as will also be anatomical changes, either imperceptible to touch or uncertain as to existence or extent—such as soft abhesions to pylorus, duodenum, or colon; reflexions of peritoneum between gall-bladder and liver, gall-bladder and duodenum. The situation of stones, whether in the cystic, hepatic, or common duct, will occasionally be impossible of detection by touch alone, as when a stone is caught immovably but not tightly in the cystic duct near the common and hepatic.

There will be, finally, the evidence of the eye added to that of the touch to discriminate between normal and abnormal distentions, thickenings; between mild and chronic infections and conditions resembling them, but not really abnormal; between chronic infections with extensive changes and beginning malignant disease.

The points which I wish to emphasize need hardly be mentioned to the experienced surgeon. He will, I am sure, immediately recognize their importance. A recent occurrence in the practice of one of America's greatest surgeons—if not the greatest—has impressed me more strongly than ever with the supreme advantage of the most intimate familiarity with all pathological possibilities, even when the diagnosis is apparently plain and the operation simple. In consultation I had agreed with the diagnosis of gall-stones and had advised operation in the case of a gentleman of thirty-nine. (Vol. LXII., p. 193.) This patient had suffered for many years, had been observed by the most eminent diagnosticians, had been operated upon under other diagnoses, and had failed to regain his health. At the operation no gall-stones

were found, but the "gall-bladder showed mild chronic thickenings and was distended with bile. There were no stones. The stomach was apparently normal. On the anterior wall of the duodenum, near the pylorus, were two masses,—one the size of a pigeon's egg, the other the size of a small olive. Just what these were, could not be determined. No enlarged glands could be found. The gall-bladder was drained. The wound was closed and there was no satisfactory solution of the question. The operator was quite 'stumped' for a good explanation of the condition. Cancer and supernumerary pancreas were suggested." No case could illustrate better than this the inestimable advantage of wide experience and great knowledge in solving questions which may arise in the course of apparently the simplest operation. No case could emphasize better the limitations of human knowledge and experience; and no surgeon would sustain me in these statements more cordially, I am sure, than would, from his vast experience, the very one whom I am quoting.

In a case of suspected cancer of the pylorus it was impossible by digital examination to make a positive diagnosis; by full exposure and free inspection of the field extensive adhesions of gall-bladder, liver, and pylorus were demonstrated. These adhesions caused a kink in the pylorus, giving rise to the gastric symptoms of hypertrophy and dilatation. The proper procedure—a pyloroplasty rather than a gastro-enterostomy—was therefore selected. By making a clean dissection of the stomach and especially the pylorus; by cutting with a sharp knife every constriction and every band until I could see the actual color and consistency,—I was able —aided by the *feel* of the pylorus—to elimniate entirely the question of cancer and ulcer, and to fix the original lesion where it belonged—in the gall-bladder.

In questionable diseases of the liver, the sense of sight is at times indispensable. In the case of hypertrophic cirrhosis already mentioned, the case in which a fatal nosebleed occurred, the surgeon felt what he thought to be a malignant tumor of the broad, convex surface of the great lobe of the liver. It is quite possible that inspection would have made the diagnosis clear. In many cases the diagnosis of hopeless cancer of the liver can be made by the sense of touch; and yet one must not be content with this sense of touch alone, especially in early cases with perhaps but one or two perceptible nodules. The experienced operator, by distinguishing the stellate contractions of the atrophying nodules of carcinoma from the old scar of an absorbed abscess can recognize the hopelessness of the disease. So it is in the rapidly-growing tumors emerging and projecting from the liver surface—one may make the distinction between the malignant and the non-malignant; between gumma and cancer; hydatids and encysted abscesses.

A frequent occasion for differentiation between malignancy and

chronic benign lesion arises when the gall-bladder is involved, and especially when the etiology indicates the gall-bladder. When the anatomical changes extend beyond the gall-bladder; when the gall-badder is only a part of an extensive malignancy; when it is one of a number of similar tumors,—the diagnosis will be obvious. When the tumor is confined to the gall-bladder, differentiation between a new growth and a chronic cholecystitis will sometimes be impossible. Under all conditions of doubt the gall-bladder should be extirpated. Indeed, extirpation is the rule in the lesions of the gall-bladder which simulate neoplasms. Hence the surgeon will be taking the safe course, whatever the diagnosis.

In one case after exploration the patient (Vol. 40, p. 24) had been left to die on the ground that the disease was cancer. Three years later I removed from the depths of the gall-bladder at the beginning of the cystic duct an embedded gall-stone which felt like a nodule of malignant disease. I had the advantage of the surgeon who had first operated from the fact that the patient's health for two years had not deteriorated, and the only complaint was pain. This made the diagnosis of cancer improbable.

In a second case (Vol. LIII., p. 29), I removed entirely a gall-bladder which strongly suggested malignancy. The pathological report proved benignancy. In a third case (Vol. XXXIII., p. 156), seen many years ago, the interior of the gall-bladder was a mass of cancer, from which, after cholecystostomy, hæmorrhage became uncontrollable. Extirpation was in this case impossible.

In still another case (Vol. 40, p. 171), jaundice and emaciation, appearing two years and a half after removal of the gall-bladder and a large stone from the cystic duct, strongly suggested cancer. At exploration I found a mass about the foramen of Winslow and in the pancreas. Although the diagnosis seemed clearly cancer and the prognosis practically hopeless, I separated the adhesions which had resulted from the previous operation. Since this operation, some two years ago, the man has continued to improve in health, and he has been awarded life insurance. The diagnosis suggested by the history and apparently confirmed by the exploration, was erroneous. Such inaccuracy should be remediable. It is, indeed, remediable; but only by long and close study of anatomical conditions, both ante- and post-mortem. Opportunity for post-mortem study of these lesions at the time when the benign inflammatory changes have not subsided, and become old and perhaps trivial adhesions, seldom if ever arises; post-mortem observation of malignant disease at that early period when it is remediable is practically impossible, because the disease is not far enough advanced to cause death. The only chance for accuracy lies in the largest possible individual experience.

In some instances, especially when the abdomen has been opened for supposed tubercular peritonitis, ovarian cyst, or other possible operable

lesion, it will be necessary to recognize by sight and touch such diseases of the liver as hypertrophic cirrhosis, atrophic cirrhosis, amyloid disease, and the like. In hepatic or biliary conditions suggesting malignancy a discrimination must be made between multiple tumors of cancer or sarcoma and multiple hydatid cysts. In one case I was able to make the diagnosis of hydatids beforehand and to confirm it on the operating table.

A difficult distinction to make on the living liver is that between malignant disease and chronic abscess. It is essential to make this distinction, first, to decide between continuance or abandonment of the operation; and secondly, to determine where and how far to go in abscess. In what way do anatomical appearances of the living liver, dependent upon an abscess near the surface, characterized by tumor and changes in color,—differ from those dependent upon a malignant growth similarly situated? The rarity of abscess and the frequency of cancer make the occurrence of error extremely improbable. When abscess is present, it is of the utmost importance to make a correct distinction, although I admit that should the necessity for comparison arise, I should be at a loss to tell the difference. In one case I drained an abscess of the liver which presented directly under the skin of the epigastrium. This abscess proved, however, dependent upon malignant disease from which the patient (Vol. XXXIII., p. 17), eventually died. This question of situation, extent and depth of the liver abscess may be a very important one. Unfortunately, we are unable to see a sufficient number of these cases to acquire skill in recognizing them.

Other conditions of the liver with which one must become acquainted are tuberculosis, syphilis, sarcoma, adenoma.

Through the incision for operation upon the biliary tract the surgeon can palpate, in the manner already described, the right kidney. If necessary the contents of the right renal space can be freely exposed to the eye by cutting or tearing through the peritoneum where it is reflected from the duodenum and passes loosely over the anterior lower surface of the right kidney. In one instance I was obliged at operation to make the distinction between an enlarged gall-bladder and an enlarged right kidney. The diagnosis before operation was empyema of the gall-bladder; but the lesion proved to be a pyonephrosis. The kidney was easily removed through the gall-bladder incision. Tumors of the right kidney are, in my experience, almost unmistakable, so that the question of differential diagnosis at exploration rarely arises. And yet I was once surprised to find a tumor of the kidney when I was convinced that the tumor was an enlarged gall-bladder. Janeway had pronounced the tumor renal. Under anæsthesia it was unmistakably renal. It proved to be, as touch and sight indicated, an hypernephroma.

The chief difficulty in the recognition of renal conditions is in the

detection of calculi embedded and often concealed by the parenchyma. The sensation to the fingers is like that of a stone concealed by the tissues of the pancreas. Conditions during life do not differ essentially from those after death, except for the solidification of the paranephric fat and perhaps greater resistance of the renal substance.

The pancreas presents difficulties to diagnosis which exceed the difficulties in all other organs, for reasons already explained. It is impossible to add to the evidence of touch by the evidence of sight without jeopardizing the success of the operation. Say what one may, explorations in the retroperitoneal depths about the pancreas add to operations risks which are sometimes excessive. Incisions into the pancreas made for purposes of diagnosis set free a certain amount of pancreatic juice; and no one knows better than the abdominal surgeon the lethal effects of extravasated pancreatic fluids. Two cases illustrate the difficulties of detecting at operation serious pancreatic disease. In one case—a case (Vol. LXI., p. 174), in which the patient was weakened and emaciated from years of suffering—after a quick and easy operation of last resort in which several large stones were removed from the gall-bladder, death occurred from what might be called inanition. At the autopsy my assistant, Dr. Homans, found a gall-stone in the canal of Wirsung, near its junction with the common duct. This we had not even suspected at the operation. This gall-stone had, however, nothing whatever to do with the fatal termination.

The second has already been referred to,—the fatal case of obstructive jaundice dependent upon a nodule of cancer in the common duct. The number of cases in which the diagnosis depends upon an accurate interpretation of touch is especially large in the pancreas. The trouble is that one cannot predict from digital examination of the pancreas whether the patient is going to die of cancer or recover from a chronic pancreatitis; whether he is going to convalesce rapidly after removal of gall-stones, or later demand an operation for a stone concealed in the depths of the pancreas. The lesson is to drain the biliary passages in all cases of doubt. Of all abdominal questions, that of pancreatic disease seems to me one of the most important as well as the most difficult.

The diagnosis of cysts in the region of the pancreas, with especial reference to their etiology, must be made tentatively, for it is never possible to demonstrate by extensive dissections the actual lesion. A cyst arising from the depths of the epigastrium, especially when covered by the peritoneum of the lesser omental bursa, is presumably pancreatic in origin, but whether dependent upon a stone impacted in the canal of Wirsung or upon some other cause, a safe dissection will not show. The fact of extensive and inseparable attachments of the deeper portion of the cyst wall has led me in four or five cases to regard the cyst as a di-

lated canal. One very large cyst was probably of congenital, non-pancreatic origin from the very fact of its easy total extirpation.

The diagnosis of epigastric cysts is aided, too, by the character of the fluid, which is limpid in pancreatic cysts—almost suggestive of an hydatid. The laboratory demonstration of pancreatic juice will establish the diagnosis. In one of Fitz's cases (reported by him as unique, see *American Journal of the Medical Sciences,* 1900), although the diagnosis was finally made in the laboratory, there was sufficient evidence at the time of operation to justify me in the enucleation of an apparently malignant or semi-malignant tumor.

In the diagnosis of lesions of the deep epigastrium, or deep upper middle abdomen—in the region of the duodenum, pancreas, and jejunum —I have recently met with cases of great perplexity, cases which illustrate my subject in, I think, an interesting way. The first was a pulsating tumor directly over the pancreas (Vol. LX., p. 36). The controversy was between a diagnosis of aneurism and of a malignant tumor through which the pulsations of the abdominal aorta were transmitted. I was so firmly convinced that the tumor was malignant that I opposed exploration. The other opinion was so positive that a surgeon was prepared to operate upon the aneurism. I explored at the urgent request of the family and found a retroperitoneal tumor that to the sense of touch was clearly malignant. Complete exposure of the tumor was requested, and was made. The patient's death was, I think, owing to this prolonged and unnecessary dissection. Little was lost, however, for the disease was cancer of the duodenum.

The second patient was operated upon for gall-stones (Vol. LXII., p. 57). A single stone was removed from the cystic duct and the gall-bladder was drained. Recurrent spasmodic pain continued. I was finally obliged to open the epigastrium because the patient vomited bile continually had gastric spasm, and without distention of the lower abdomen had no passage of either gas or fæces. Any one reading this combination of symptoms: gastric spasm, continuous vomiting of bile, distended epigastrium, collapsed lower abdomen, constipation—can hardly help making the diagnosis; and I admit that I do not see how I could have overlooked it. Stricture of the jejunum, whether cancerous or not, is, however, not so common a lesion that many would even think of its possibility! And yet there was a combination of symptoms and signs which ought to have been unmistakable. The anatomical appearances, like those of cancerous intestinal stricture in the usual situation, were so characteristic that the diagnosis was made at a glance. The distended, hypertrophied, reddened and vascular proximal coil; the collapsed and anæmic distal coil; the annular sulcus with a pearly, smooth mass in the centre of a stellate depression,—all were pathognomonic of cancer. Immediate resection was followed by recovery.

Here the importance of experience in anatomical appearances was clear, for in the one case a fatal dissection might have been avoided, and in the other a necessary operation might have been overlooked.

In most operations upon the spleen the lesion must be recognized by the surgeon upon the spot, especially in emergencies, when examination of the blood is impracticable or impossible. In one case, already reported, I removed an enormously enlarged spleen which proved to be that of a myelogenous leukæmia. As I had not at hand any means of examining the blood and had never seen the patient before, and as the symptoms seemed to demand an immediate operation, I removed the spleen. The patient recovered and was well for several years; but eventually she died, in the most distressing way, as patients with this disease usually do. Had I been sufficiently acquainted with the appearance of the spleen in this disease, I should have avoided an operation which however valuable in the study of the disease, was, from the patient's point of view, of no permanent service.

The condition of the spleen becomes of great importance when, after direct violence over the splenic area, the signs of hæmorrhage appear. As in violent blows over the liver, a fracture of the friable parenchyma with bleeding should be at once suspected, and the abdomen opened. The emergency of fractured spleen or liver is, however, rare. The diagnosis can be made immediately by the sense of touch which detects in the sharp edges of the fissure an abnormal anatomical contour. In the older days I recall severe injuries to the liver from which recovery was spontaneous; in the later, but one operated upon, and that fatal. In this case I removed a piece of the right lobe which was lying free in the abdominal cavity. There had been much hæmorrhage, but it had ceased. What would have become of the loóse fragment without operation? In a case of fractured spleen at the Massachusetts General Hospital Dr. Brewster operated for me and removed successfully the fragments. In another case death followed an exploration that was performed too late. In renal injuries local extravasations of blood are very common; peritoneal, very unusual. In right-sided blows the fingers should search the right kidney as well as the liver. In gunshot wounds the importance of a clear and immediate recognition of injuries to the solid abdominal viscera is of course great. As a rule, however, hæmorrhage from this cause seldom indicates operation, because bleeding from the large vessels is usually immediately fatal; while that from small ceases spontaneously. The question in injuries of the spleen, and more frequently in those of the kidney, is that of total extirpation, because of extensive lacerations and destruction of the blood supply. I have known of a fatal hæmorrhage from puncture of a large splenic vessel by a small aspirating needle used by a physician in tapping the pleural cavity. The source of the blood was determined only after prolonged

post-mortem search. In the living patient diagnosis, as well as control of the bleeding, would have been impossible.

A dangerous complication of a common disease is splenic abscess in typhoid fever. This occurrence must be very unusual, for I have never seen a case or known of one at the Massachusetts General Hospital. The nature of things makes familiarity with the touch of splenic infections almost impossible. The time, nevertheless, has come when in typhoid, either by mistake or by design, operations are not so very unusual, and the diagnosis by touch and sight is becoming of greater and greater importance.

The determination of the functional activity of the kidney is one of the most important and valuable pieces of evidence that we can gain in explorations upon the living. In spite of extreme preliminary care in examinations of urine, whether obtained by segregation or by catheterization, I rely more upon the actual "feel" of the kidney than upon anything else. In all questions of nephrectomy it is essential to determine as accurately as possible the condition of the kidney that is to be called upon to bear the whole burden of elimination. As a matter of theory, segregation and catheterization are perfect; as a matter of practice, both are imperfect. The actual digital examination of a kidney has greater advantages and less dangers than either. Between catheterization and segregation the Harris method of the latter seems to me much the safer. Ureteral catheterization should be practiced only by those who have made a specialty of this work. Even the expert may inflict serious mechanical injuries and spread grave infections,—dangers which in the hands of the inexperienced are prohibitive. If there were no other way of determining the condition of the kidney, it would be necessary to resort to these methods; but we have as a preliminary step in nephrectomies and nephrotomies without danger to the patient, the possibility of exploring with the hand. Error is of course possible even to the most refined and educated touch.

The following case illustrates the danger of relying too much upon the results of examination by the inexperienced hand. The incident occurred many years ago, before the routine practice of manual examinations during operations. The case was one of tumor of the left kidney which I had decided to explore, and, if it seemed best, to remove. The right kidney in size, shape, and consistency seemed normal, though afterward I remembered that I felt a slight doubt about it. I removed the left kidney and found myself mistaken as to the malignancy, for the lesion proved to be hydronephrosis. At autopsy the right kidney also was found hydronephrotic; and, whereas the two had been able to carry on adequate elimination of urine, one was not. The patient died of anuria. From that time to this I have been able to demonstrate accurately the functional sufficiency of the kidney.

Neglect of this examination will sooner or later lead a man to remove either the only kidney that the patient has or the only one that is of any value.

The diagnosis of renal diseases by touch and by sight is comparatively easy; and yet the surgeon will meet with many difficulties, the commonest of which is in the detection of a renal stone. He will find the same uncertainty in detecting a stone concealed in the kidney that he will in detecting a gall-stone concealed in the pancreas; and it will be dependent upon the same cause—the obscuration of visceral parenchyma. Once a stone is actually felt, however, the sensation is as unmistakable almost as that which a stone in the bladder gives to the searching sound. While the surgeon is perfectly satisfied to decide for or against nephrotomy when he actually feels a stone, he is much disquieted, after a history of stone in the kidney, confirmed perhaps by the x-ray, to abandon the operation on the strength of his inability to detect the stone by actual palpation. He knows that it is sometimes impossible, in the case of a small or flattened calculus, to detect the stone through the renal parenchyma. He feels strongly the dangers of a useless nephrotomy, and yet, having gone far enough to expose and feel the kidney, he has the same disquieting reluctance in abandoning the operation without making absolutely sure of there being no stone that he has in abandoning the search for a gall-stone concealed possibly in the depths of the hepatic duct or in the thickened tissues of the pancreas.

The differentiation of new growths in the kidney is of the utmost importance, for upon the correct interpretation of the anatomical appearances depends the subsequent procedure. In the case already cited—double hydronephrosis—the patient's death was owing entirely to my inexperience in digital examination of normal and abnormal kidneys. Today I should have not only additional experience in such cases, but the resource of catheterization of the ureters and segregation of urine—resources which, as I say, in the hands of the expert, in spite of its dangers, may be of the greatest value. The differentiation between benign and malignant tumors of the kidney by the sense of touch is sometimes easy, sometimes difficult, sometimes impossible. It seems easy enough to make this distinction when one looks back on his cases after his diagnosis at the operating-table has been confirmed by the microscope. I have at this writing, however, a kidney removed three or four days ago under the clinical diagnosis of hypernephroma. There has as yet been no report from the laboratory, and I still feel considerable doubt as to the wisdom of operation. I have a feeling that the patient might have been able to get along without this dangerous operation, from which I thought at one time that she might die.*

*This patient (Vol. 60, p. 63) had haematuria, but the diagnosis remained in doubt until, under anæsthesia, I felt a tumor of the left kidney. The right

In the case of the kidney, if the operation is performed on anatomical lines, as I think it always should be, the surgeon has the advantage not only of the sense of touch, but of sight. When possible I expose the kidney so fully that I can see the whole of it, feel the whole of it, and can have immediate access to its great blood vessels. In this way the gross evidence is at hand upon which to make a diagnosis, except section of the tumor. One can decide whether it is best to enucleate inside or outside the capsule, and in case of hæmorrhage he can instantly secure the bleeding vessels. There is even greater objection to cutting into a tumor of the kidney for diagnostic purposes than there is to cutting into a tumor of the breast; for the loose tissues about the renal spaces are, as I have demonstrated beyond question, extremely susceptible to autoinfection. For example, I have seen, after the removal of a sarcomatous kidney from a child, the whole renal area planted with malignant disease which, in the course of three or four weeks, even sprouted out through the stitch-holes.

In connection with the kidney the question of normal mobility is of interest and importance. I have already said that the right kidney in life is usually movable enough to allow the lower border to be brought to the brim of the pelvis. Abnormally movable kidneys—almost invariably right—have more or less of a pedicle. Such kidneys can not only be brought to the brim of the pelvis, but can be pushed far to the left. The left kidney, although it can be brought down a certain distance, will almost never be found to have limits of motion exceeding the normal.

The surgeon in fixing a kidney should take advantage of the opportunity of making a careful examination. He will at times be perplexed to find some gross anatomical change hard to explain accurately enough to guide his subsequent operation. A young lady (vol. LIV., 26 ——), after complaining of fatigue and right-sided uneasiness amounting at times to actual pain, showed a rather large and unusually movable right kidney which I decided to fix. Free exposure disclosed an enlarged, irregular kidney, filled with what were apparently cysts of different sizes. No stones were perceptible, and there had been no pus in the urine. Was this simply a cystic kidney or not? Should I be doing my full duty by fixation? Ought I to incise the kidney for confirmation of a diagnosis which seemed plain enough—at the expense of increased danger and perhaps a urinary fistula?

Space and time do not permit consideration of other abdominal areas and conditions. The pelvis alone, hitherto the most frequently invaded and best understood, presents questions which tax the skill of the most experienced operators. To make an immediate and correct diagnosis

kidney was normal in shape, size, and consistency. Nephrectomy was difficult and bloody. The patient nearly died of hæmorrhage, but, though convalescence was slow, she eventually recovered completely.

of even so simple a thing as a normal pregnancy may call for skill of the highest order. To discriminate between the ovarian lesion demanding extirpation and that demanding repair; to tell the benign uterine tumor from the malign; to differentiate the tube that can be restored and permit pregnancy from that which cannot remain and permit good health; to recognize, in a word, the operable and the inoperable—the lesion which demands, which indicates, which permits operation, and the lesion which contra-indicates, which strongly forbids it,—to be able to do these things, requires long experience and patient study upon the dead and especially upon the living.

The swift and fatal lesions of the abdominal cavity, to some of which I have already referred, demand a brief consideration, for they, from their very nature, cause the greatest mortality of abdominal surgery. The fact that most of these lesions are curable by prompt operation, places the burden of successful treatment upon early diagnosis and timely operation.

In many abdominal emergencies there is before operation but little to guide the surgeon. In a large proportion—appendicitis—the diagnosis is easy. Taking them all together, however, including those fulminating lesions which are immediately obscured by a general peritonitis—the surgeon is obliged to make his attack through the median line. In many cases I have been so uncertain of the real lesion that I have been led to it only by systematic approach through that incision which, in the long run, has proved the most advantageous—the median line below the umbilicus, or the median line above the umbilicus, according to the preponderance of the symptoms and physical signs.

One is guided by the appearances disclosed. If, the moment the peritoneum is opened, the surgeon finds that the fluid is purulent and fæcal in odor, he is guided to the commonest cause of acute general peritonitis accompanied by odor—the perforated vermiform appendix. In young adults, finding the appendix normal, he examines first the stomach and duodenum; in older people he examines first those portions of the alimentary canal which become perforated by malignant disease: the sigmoid flexure, the hepatic and splenic flexures, the ileocœcal coil, the rectum. When there are free purulent fluids of urinary odor, he examines particularly the urinary tract. In traumatic cases a fæcal odor suggests a perforation of the alimentary tract; free urine proves a rupture of the bladder, ureter, or kidney. Fluids containing food or having that extraordinary characteristic odor of gastric contents, lead at once to the stomach. If in non-traumatic cases the abdomen contains free blood, and especially if the presenting areas of the mesentery show spots of fat necrosis, he seeks the pancreas. I have been led to this organ by free blood and areas of necrosis in a girl of eighteen. When the free fluid is clear and the presenting peritoneum is covered

with small mealy nodules, the Fallopian tubes, the seminal vesicles, or the spermatic cord should be examined. In traumatic cases the presence of free blood leads the surgeon at once to the spleen, the liver, the mesentery, or the omentum.

In pelvic cases the escape of blood in women of child-bearing age leads one to inspect the Fallopian tubes for extra-uterine pregnancy, or the stomach for a perforated and bleeding gastric ulcer.

Finally, the presence of blood in the abdominal cavity, in connection with the ovarian tumor or the fibroid tumor, leads one to inspection of the large veins and arteries of these abnormal growths. I have found free bleeding from the arteries of a fibroid, evidently caused by bimanual examination. In a fatal abdominal hæmorrhage following labor the source of blood was found to be a vein in the uterine wall. In rare instances I have found blood in the abdominal cavity that was evidently due to the rupture of a Graafian follicle. Many interesting and valuable observations will be made when attention is called to the importance of making them. The result will be a skill in the interpretation of disease and in its cure which will well repay the observer.

In apparently the plainest case of malignant disease, for example, skill in recognizing the significance of anatomical appearances may lead to the discovery of actinomycosis or of foreign body. In a case of supposed uterine fibroid it may demonstrate a normal pregnancy, a phantom tumor, or even a fæcal impaction.

The operating abdominal surgeon, trained in the pathology of the living, and the clinical physician, trained in the pathology of the dead, expert as they may be in the interpretation of symptoms and in the significance of anatomical changes, cannot but be impressed by the limitation of their skill. In pathology, symptomatology, diagnosis and especially in prognosis, indications for operation and operative technique, they will be daily confronted by problems which will not only perplex and baffle their skill.

The responsibilities thrust upon the surgeon in the interpretation of symptoms by anatomical appearances are responsibilities upon which depend health or invalidism; life or death. In active surgical practice the responsibilities assumed by the surgeon are, first, an interpretation of symptoms accurate enough at least to indicate exploration; secondly, a recognition of anatomical changes sufficiently clear to lead him to the exact seat of the lesion; and, finally, the skill to carry out quickly and safely the appropriate operation.

In training the prospective surgeon to bear successfully these responsibilities we should recognize the necessity for prolonged and intense study of histories, symptoms, and signs; of the pathology of the dead;

of the anatomical changes in the living; and, finally, of the relations and interdependence of histories, symptoms, and anatomical changes.

As surgery invades one region after another, seeking mechanical causes for hitherto obstinate and perplexing symptoms, and proposing by operative measures mechanical relief, the surgeon's responsibilities are necessarily greatly increased. The necessity for knowledge in comparatively unknown fields demands a familiarity with symptoms and conditions before regarded as purely medical. One hardly could imagine twenty-five years ago that it would ever be necessary for the surgeon to become familiar with the anatomical appearances of typhoid in the living. And yet previous to the recent developments of abdominal surgery what was really known about the anatomical appearances in the early stages of typhoid fever? Practically the only opportunity that the pathologist ever had of studying this disease in the early stages was when death took place from some intercurrent affection. The surgeon today sees not only the gross changes of the early stages of typhoid after death, but those delicate anatomical appearances of perhaps the first hours of the attack, when in atypical cases the symptoms and signs point strongly toward an acute appendicitis. And it is essential to the proper education of the abdominal surgeon that he should be familiar with just such conditions. The number of explorations for acute abdominal symptoms caused by typhoid fever is, in any man's experience, small; but in the aggregate it is undoubtedly large. In a case already reported I have myself demonstrated the appearances in the first days of typhoid fever. In spite of a strong suspicion of typhoid the symptoms seemed to demand an exploration. The correct diagnosis was made by Dr. Whitney from the examination of certain lymph glands which I removed from the ileo-cœcal coil.

As in typhoid fever, so in other acute non-surgical abdominal diseases,—of the stomach, intestine, pelvic viscera, kidneys, liver, pancreas, and spleen,—whether they are coincident with the lesion demanding exploration or dependent upon it, our knowledge is daily being extended. In chronic affections, too, much valuable information is gained by explorations made under a mistaken diagnosis. In cirrhosis of the liver, for example, explorations under the diagnosis of tubercular peritonitis—or even of ovarian tumor—have shown the appearances of the liver in the early stages of that disease.

What is the best method of education in the interpretation of abdominal disease during life? In the medical school the best opportunity for the education of the touch is found at the autopsy table; for in a large number of lesions, such as new growths, gall-stones, renal stones, changes in the shape, size, and consistency of organs,—the autopsy room (except for the restraining influence of the fear of doing harm) furnishes practically as good means of education as the operating table.

At every autopsy exercises should be held for this purpose. The history of the case and the clinical examination as described in the records, should first be given. Upon this evidence each student should he required to write down what he expects to find. Next the body should be examined for physical evidence of disease. Upon the diagnosis thus made probable should be based the first incision, which should be large enough to admit the finger. After the examination by a single digit the incision should be enlarged enough to admit two fingers or the whole hand. When, for example, the history points toward cancer of the stomach, I make the usual incision—small at first, later large. The student, with gloved hand, makes as thorough an examination as he wishes, and writes down his final diagnosis. Each man is then called upon to give his opinion as to whether he would operate or not. When possible, the preliminary exploratory steps are then taken as they would be in an exploration for similar conditions in the living. These steps often demonstrate better than any other the actual relations of the normal and the abnormal.

In deaths from such diseases as pneumonia and apoplexy, in which there are no abdominal complications, I have required the students to tell me, by the sense of touch alone, the conditions of the abdominal viscera. This course more than any other has seemed to stimulate interest in the education of the tactile sensibilities. After the conclusion of th consultation—so to speak—the autopsy is continued and the examiners are able to see wherein they were right and wherein they were wrong.

The education of the touch in the prospective surgeon is next carried out in the course of abdominal operations. After my own examination one or two assistants are asked to examine and to state their opinion and advice. This takes a very short time. With intelligent and experienced assistants, it not only adds to the strength of the diagnosis, but often raises doubts of grave import, or affords suggestions of great value. Young men who intend to practice medicine, and especially those who intend to practice surgery are therefore recommended to utilize every possible opportunity to make examinations in the autopsy room as they would make them at operation. I would next insist strongly upon our duty to instruct the prospective surgeon by giving him—in the course of operations which do not demand haste—every chance to educate the senses of touch and sight.

Much remains to be said upon this subject, but the patience of the audience must be already exhausted. Perhaps too much importance has been attached to it; but how can too much attention be given to a subject upon an intimate knowledge of which depends the successful solution of questions of life and death? One cannot but feel, upon calm reflection and candid review before his own conscience, that many if not most of his errors of omission and commission, especially in abdom-

inal surgery, have been the result, not so much of ignorance and inexperience in general and special pathology as illustrated in the autopsy room, as of his lack of knowledge and familiarity with those delicate changes from the normal which are met with only when the physiological and pathological processes are in actual operation.

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## PYURIA.

By Ernest G. Mark, M. D., Kansas City, Mo.

In presenting this subject it is, perhaps, best at the outset to remark that by the term "pyuria," the writer has reference only to the chronic form arising from suppurative processes in the urogenital tract in which pus in the urine is the most persistent and tangible symptom. The accurate localization of the origin of this pyuria is absolutely essential for its elimination and it is in the hope of presentng the methods for differential diagnosis concisely and clearly that this subject has been chosen.

Pus in the urine may originate in (1) the anterior urethra, (2) the posterior urethra, (3) the prostatic follicles, (4) the seminal vesicles, (5) the bladder, (6) the right ureter, (7) the left ureter, (8) the right kidney or its pelvis, (9) the left kidney or its pelvis and (10) from suppurating areas in the neighborhood of and communicating with any part of the urogenital tract.

Various procedures have been made use of for the purpose of determining definitely the origin of a pyuria. It is unfortunate that the majority of the methods in general use are fallacious and it will be the endeavor of the writer to point out these fallacies and the means by which they may be corrected.

Preliminary to absolute localization, it is necessary to determine whether the suppurating focus is located in the urethra, the bladder or the upper urinary tract. The two-glass test of Thompson, and the three-glass test of Jadassohn, in conjunction with microscopical urinalysis, have been largely depended upon for this differentiation and while they possess undoubted value, are subject to error.

Briefly stated, in the Thompson test, the first glass is supposed to contain the products of suppuration from the entire urethra and the second such products as are mixed with the bladder urine or squeezed from the prostatic follicles. In the Jadassohn test, the first glass is presumed to contain the products of suppuration from the entire urethra, the second, the products from the posterior urethra and the third, the material squeezed from the prostatic follicles. Should the first glass be cloudy, the second fairly clear except for a few shreds, and the third more turbid, it is presumptive evidence of a posterior follicular involvement. Should the first glass contain shreds in a clear urine and the

latter glass or glasses, no shreds, the indication is that the anterior urethra alone is involved. Should all three glasses be turbid in about the same degree, the presumption is that we have to deal with a suppuration which is back of the urethra.

These tests are not accurate for the following reasons:

(1) Should there be profuse suppuration in the anterior urethra, the products of suppuration will not be all contained in the first glass.

(2) The suppurative process may be confined to the posterior urethra and yet be so slight as to exhibit shreds only in the first glass.

These sources of error may be readily obviated by thorough irrigation of the anterior urethra previous to urination, the washing being kept for examination. These washings will contain what suppurative products are in the anterior urethra. What shreds or pathological material are passed at the subsequent urination must come from back of the compressor.

The questions which then arise are whether we have to deal with a posterior urethritis, a follicular prostatitis, a seminal vesiculitis, a cystitis or a suppurating focus located further up in the urinary tract.

If the urine passed in two glasses subsequent to irrigation of the anterior urethra exhibits shreds in the first glass and none or relatively few in the second, it is practically certain that we are dealing with a posterior urethritis. If both urines are cloudy in about the same degree or the second slightly more turbid than the first, the probabilities are that there is a follicular prostatitis present, possibly a cystitis, ureteritis or a pyelitis. Microscopical urinalysis is absolutely imperative, and in the hands of a skilled pathologist will prove extremely valuable in identifying the different epithelia, etc.

If we have reached the definite conclusion that the suppurating focus is in the posterior urethra, we must determine the integrity or involvement of the prostatic follicles and the seminal vesicles. This investigation is best carried on as follows:

After urination the bladder is comfortably filled with a warm normal salt solution by the Janet method and the prostate carefully massaged, care being taken that the massaging finger does not extend beyond the limits of the prostate. The bladder is then emptied into a clean glass and the fluid saved for examination.

The bladder is again refilled with warm normal salt solution and the contents of one vesicle expressed, after which the patient empties the bladder, the fluid being kept for examination. The same course of procedure is pursued in regard to the other vesicle.

The fluids are then centrifuged and the microscope completes the differentiation.

Where we are called upon to differentiate between a cystitis and a suppuration higher up in the urinary tract, the following procedure commends itself as being easily applicable and fairly accurate.

The bladder is thoroughly irrigated through a soft rubber catheter until the washings are returned clear. The catheter is left in situ and the accumulating urine allowed to drain through it and collected. If it is cloudy and contains pus and epithelia in about the same proportion as the bladder urine passed before irrigation, the evidence is presumptive that we are dealing with a descending infection. The possible sources of error are obvious and may be avoided by cystoscopy and careful microscopical urinalysis.

If, as a result of these investigations, it is evident that the pus originates in that part of the urinary tract above the bladder, the questions as to whether the infection is unilateral or bilateral or is renal or ureteral, remain to be settled. For this purpose, accurate segregation of the two urines is essential. The various segregators are, at the best, but makeshifts. They are inexact and are productive of much discomfort when in place, especially in the male bladder.

The catheterizing cystoscope affords us our only exact method of segregation and should be utilized where an accurate division of the two urines is essential. It requires no remarkable degree of skill for its employment and under proper precautions in technique is absolutely accurate and devoid of danger.

After the catheters are inserted into the ureters they are pushed up to the kidney pelves and the cystoscope withdrawn, leaving the catheters in situ. After the first drachm or two of urine has escaped, the drainage is caught in two sterile bottles labeled "Right" and "Left," extreme care being taken that the catheter from the right ureter drains into the corresponding bottle and that from the left into its bottle. If no pus is found in these urines, the catheters are gently pulled down until they are just within the ureters and the drainage again caught in marked, sterile bottles, thus differentiating a pyuria originating in the kidneys or their pelves from one which is ureteral. The latter differentiation is seldom called for but completes the last link of the chain.

By the procedure outlined in this short paper, an accurate localization of the origin of a pyuria can be assured. That such localization is essential for successful curative measures, there can be no question. A pyuria accompanied by a dysuria must not be carelessly assigned to a posterior urethritis or a cystitis. Neither may be present and the kidney condition responsible for the symptoms, overlooked in a none too painstaking diagnosis, may pursue its course unchecked. An undiscovered vesiculitis, draining its infection into the posterior urethra and by this drainage, making intractable the accompanying posterior urethritis, may prove the despair of the careless diagnostician.

Such conditions arising frequently in the every day practice of medicine seem to justify the purpose of this paper, to urge the application of methods of precision to the localization of a pyuria.

# EDITORIAL.

## IBSEN IN PSYCHIATRY.

When a literary man of acknowledged position dies, critics rush into print with all sorts of theories anent the esoteric meaning of his writings. Ibsen has not been spared this honor, especially by the medical press. The many articles that have appeared attribute a most remarkable knowledge of medicine to the distinguished literateur when the facts are that aside from heredity, his pet theory, and neurasthenia, his works are purely literary and are not tracts written to exploit the dramatic possibilities of puerperal psychosis, paranoia and other mental derangements. Ibsen made a study of the "Femme incompris," not as Alexandre Dumas, Jr., saw her, the woman whose extraordinary behavior was prompted by physical predilections rather than by spiritual motives, but as an entity who has inherited certain physical and mental defects. That Ibsen saw in heredity a bete-noir is not surprising when we remember his early life among the simple Norwegian folk in his native village of Skien, and later on at Grimstad where he was apothecary's drudge for five years. His introspection led him to ponder the reasons for the crass ignorance, the petty meanness, the blind prejudice that surrounded him on all sides, and the outcome of his reasoning declared itself in a firm belief that this unadvanced state of society was due to heredity. Even in Christiania, where a larger field for observation presented itself, the obsession of his theory remained. We do not wish to quarrel with Ibsen for having a theory in which we concur, but we do emphatically protest against the interpretations of his works as set forth in the medical journals. Nora Helmer in "A Doll's House" is not the victim of any clearly outlined mental derangement. She is the spoiled daughter of an indulgent father. She is exacting, unforgiving, high-strung, emotional. Added to this, she is imbued with the dramatist's idea (an idea that obtains in the majority of his plays) that a woman owes certain duties to herself. Those who have read the drama know the results. Hedda Gabler is the daughter of General Gabler, from whom she has inherited mental traits that make her an untrammeled unit in society. She also owes duties to herself and to none other. Her unhappiness, founded on a good cause, finally drives her to suicide. Is this a puerperal psychosis even granting the possibility of one month's pregnancy? Nevertheless Dr. Jas. J. Walsh, in the *Independent* (New York, Aug. 23) calls it "A typical example of puerperal psychosis," and the *Journal of the American Medical Association* (Chicago, July 14th) characterizes it in like terms. Ellida Wangel, in

"A Lady from the Sea," is another Ibsen character who cannot adjust herself to conventional life. The sea is continually calling her, so she is made to remark, and she leaves under compromising circumstances. At first one is tempted to say, here at last is a distinct disease—delusional insanity, but this would be a wrong diagnosis, for the dramatist gives us to understand with unmistakable clarity that her love for the sea was a case of heredity and that by being true to herself—following the dictates of an emancipated mind—she returned to her husband a better and purer woman. We could continue this *ad infinitum,* but the above illustrations show to our mind the unbending attitude of Ibsen toward what he conceived would cure the ills of society. Only in one instance—that of Oswald Alving in "Ghosts"—does he describe a distinct disease, hereditary syphilis with resulting dementia. All the other plays are studies in heredity with characters not afflicted with paranoia but influenced by the dramatist's theory which he believed would result in the complete emancipation of the sexes. Aside from being a literateur he was a sociologist and psychologist but not a psychiatrist. A physician of repute who reads into any of Ibsen's characters, excepting the aforementioned Oswald Alving, nosological symptoms of psychiatry, is guilty of a laxity of his scientific calling. Medicine should have a dignity to inspire the laic with respect. This can only be done when both medical and secular press cease to publish superficialities which are eagerly caught up by an expectant public prone to tincture the conversation of the day with veiled allusions to loathsome and repulsive diseases.

# COMMENT.

## THE NINTH COMMANDMENT IN MEDICAL JOURNALISM.

Not since Dean Swift wrote the immortal "Battle of the Books" has there been such a delightful interchange of compliments as those now appearing simultaneously in the New York *Medical Record* and the *Journal of the American Medical Association*. The fulminations are so lurid that a looker-on is tempted to credit each with that highest form of humor—the unconscious. The *Record* should not forget that Cæsarism is the outcome of that much-misunderstood aphorism — Liberty, Equality, Fraternity. If we have losses in other walks of life — and what observer can gainsay this? — why should an association that wields the power of the American Medical be exempt? A boss is a peculiarly American institution with no counterpart elsewhere. He rides the highest crest of universal suffrage, his actions are unquestioned by his supporters and admirers; in fact, his exaltation, sometimes imagined, at other times exaggerated, is prone to convert amiability and suavity into arrogance and aloofness.

The New York *Medical Record* seems to be oblivious of this when, editorially, it demands with a childishness remarkable in this age of muck-raking, "that the policy of secrecy in the management of the Association be done away with" (Sept. 15). The editorial in question is an expression of great kindliness on the part of the writer, who is moved to see extenuating circumstances for past misdemeanors. Could charity be better expressed, and belief in the triumph of greatly wronged innocence be better voiced, than in the following propitiatory lines: "The MEDICAL RECORD has believed and has repeatedly declared its belief in the personal honesty of the officials of the association * * *. We are rejoiced to learn that those in control of the Association have at last been brought to our way of thinking, and, if they carry out loyally the promise of reform which they have now made, they will have the cordial support of all the members whose servants they are." (Sept. 15). A week later (Sept. 22), we note a sad decline in Dr. Stedman's buoyant tone, for the *Journal* published a most exhaustive attack on the *Record* the day Dr. Stedman evinced his extraordinary enthusiasm. Instead of the *Record* seeing a cloudless sky auguring for reform and general satisfaction, it sees portentous clouds, fearlessly calls the *Journal* the instigator of falsehoods, and advises the Editor-Secretary to a closer application of the "Ten Commandments with the ninth underscored, and see that he, or whoever writes the editorials, observes its admonition in his public utterances." Simultaneously the

Journal makes recriminations, and, prompted by malice, attacks the probity of William Wood & Company. "In the commercial reports, William Wood & Company, Medical Publishers, are rated at a pecuniary strength of from three hundred to five hundred thousand dollars," splutters the *Journal*. This piece of emotionalism is so convincing of William Wood & Company's rascality and the sublimated uncommercialism of the *Journal* that comment is unnecessary. Any adverse criticism of a publisher is a superfluity we condemn. The history of the trials and tribulations of authors has taught us to respect those superior judgments who decide the fate of a literary aspirant. A publisher who has attended strictly to his onerous duties and has accumulated $500,000.00 by refusing that which is poor stuff and publishing only gems of science, must needs be a clever, not to say a very good, man. It is the manner of the day to deride the publisher for grave mistakes in judgment, but though we can lay at his door the indisputable fact that Edward Fitzgerald, the translator of Omar Khayyam, was turned down seventeen times, we must admit that this apparent heartlessness has worked weal for humanity by stemming the tide of usless and inane books. And who will be temararious enough to deny the rare discrimination shown in William Wood & Company's list of publications! As for the controversy, the smug self-satisfaction of the *Journal* until the criticism of the *Record* aroused it from its pleasant couch of security was a picture of the rare qualities of optimism. In the words of Dr. Pangloss, in Voltaire's *Candide*, the *Journal* thought "all is for the best in this best of possible worlds." Optimism unalloyed is a charming quality to possess; it takes a joyful survey of the ills and trials of mankind, its indifference is quite callous, and finally it allows the individual to lumber on from year to year with kind thoughts, kind words and unruffled spirits. On the other hand, optimism, when bolstered up by bossism, seems to be completely sensitized, for a mere pin-prick would appear to cause much agitation. Is the belligerent attitude of the *Journal* indicative of a combination of the above qualities, causing the belligerency to be the mere sputter of an over-excited old lady? Is the *Record* in the right to demand the veil to be torn away from the door which leads to that inner room beloved of all financiers on account of its simplicity of furniture and multiplicity of methods? Who will answer these pertinent questions? In the meantime, the controversy, having begun mildly some months back, is deteriorating into personalities and has the dignity and versimilitude of what Philip Massinger wrote some three hundred years ago, in his play, *"The Virgin-Martyr"*: "I stole but a dirty pudding, last day, out of an alms-basket * * * and the peeking, chitty-face page hit me in the teeth with it."

## PHILOSOPHY AND SLEEPLESSNESS.

We are struck with the verity of the statements made by Norman Bridge in an article entitled "Some Truths About Sleep." The constantly increasing number of people who in our modern life suffer from sleeplessness is a matter worthy of thought. These persons driven to desperation by night after night of mental torment, are all too apt to seek the aid of drugs to produce sleep. This is evidenced by the ever-increasing output of "patent" soporifics. Any individual so affected will label his malady insomnia. Correctly speaking, the name of his disease is insomniphobia. The vicious circle which he travels mentally is of the greatest importance in considering the remedy. The insomniac over-desires to sleep. He gets exceedingly anxious as to whether he will or will not sleep. He retires at an habitual hour, darkens his room, closes his ears to the noise nuisance and then mentally demands sleep, meanwhile being convinced that he is to be disappointed. Consequently he is restless, exasperated and in the morning feels a sense of chagrin, and this is just the mental state impossible to sleep.

Our ideas regarding sleep go back for many generations. We are all convinced that we *must* sleep. Furthermore, we have rules for sleep, rules for going to bed and getting out at stipulated hours and the infraction of these rules seems to imply a moral culpability. Our first error is in not knowing the required amount of sleep for each individual case. Some of us are laborers of the body, others laborers only of the mind, and some do not labor at all. Should we then all enjoy the same amount of peaceful slumber?

Sleep is not to be coerced. The insomniphobiac should cultivate a mental attitude of supplication and tolerance rather than one of overbearing dictation in wooing sleep. Furthermore, he should never count the hours of slumber for this breaks the charm and spoils the game. The mind should be brought to a state of mental tranquility by a happy spirit and cessation of active thinking. These are the primary factors. The secondary sleep will then come in an amount sufficient to our bodily and mental needs.

# MEDICAL AND SURGICAL PROGRESS.

## INTERNAL MEDICINE

IN CHARGE OF

JESSE S. MYER, M. D.

ACUTE DILATION OF THE STOMACH AND SO-CALLED ARTERIO-MESENTERIC OBSTRUCTION OF INTESTINES. — (*Munch. Med. Wochensch.*, Aug. 7, 1906).—Neck reviews the literature on this subject and reports four cases. Regarding the etiology he gives the following: (1) Over-eating or over-drinking. Kirch reported a case caused by drinking two bottles of lemonade. Heine's case was caused by a large meal and three or four bottles of champagne. Cortez, Brommler, Hofmann, Boas, Frankel and Abbe also report cases from error of diet. (2) Cases have been reported accompanying kypho-scoliosis (Perry, Shaw, Kirch, Kelly). Kirch's case occurred in a girl who had a plaster-of-Paris corset to correct a deformity of the spine. (3) Chloroform narcosis following operation. Reidel describes 29 of these cases. He says the presence of chloroform in the stomach produces changes upon the muscles and nerve elements of the stomach which cause this severe condition. He also reports a case due to a small dose (.5 gm.) of veronal; later the patient was given other narcotics (sulphonal, morphine, bromides). (4) Trauma, as crushing injuries, have caused it in a few cases (Appel, Wallace, Box). (5) Arterio-mesentery intestinal obstruction. Kundrat reported three cases including the post-mortem findings of acute dilatation caused by compression of the duodenum from tense mesentery. That this could be caused by displacement of the small intestines was the conclusion of Albrecht from two post-mortems. This has also been proven experimentally by the author. But that a general enteroptosis is a predisposing condition for this obstruction of the duodenum in which the superior mesenteric artery and the mesentery are responsible, is probably without question. (6) Constitutional diseases and previous diseases of the stomach predispose. The symptoms are violent vomiting, more or less pain in different parts of the abdomen, distension of special locations of the abdomen depending upon shape and size of the stomach, frequent thready pulse and an absence of rise of temperature. As to the diagnosis, peritonitis is excluded by the absence of temperature and capsulated fluid in the left half of the abdomen by the use of the stomach tube. He says that of 60 cases, only 13 were diagnosed correctly. The prognosis depends entirely upon the active immediate institution of the correct treatment. Of 64 cases, 47 have died. The treatment consists (1) in emptying the stomach entirely. This is done most advantageously in a dorsal position. The importance of the deep introduction of the tube is emphasized. He says that in the cases which died after stomach lavage and emptying it is probable that the stomach was not completely emptied. (2) During the first day, lavage and emptying the stomach

should be done frequently. (3) Diet should be absolutely interdicted by mouth and nutriment, enema substituted if necessary. (4) Salt transfusion should be given. (5) Neck believes that the operative treatment is not indicated, at least, until after medical treatment has failed. Operations (laparotomy, gastrotomy, puncture of stomach, gastro-enterostomy; Appel, Hofmann, Joseph, Wallace, Box, Kirch, Korte) have all been fatal.

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Fat Digestion in the Stomach.—Ludwig von Aldor (*Wien. Klin. Wochensch.*, July 26, 1906).—Reviewing previous investigations made upon this subject the author attributes to Marcet the first positive statements, in 1858, affirming fat digestion in the stomach. Cash corroborated Marcet's finding by experiments with the extract of the stomach mucous membranes of dogs and said that it was of ferment nature. Klemper and Scheurlen demonstrated this process in dilated stomach of humans and attributed it to a process of fermentation. Kluf, Contegean and Bunge all have substantiated the findings of previous authors regarding the fat-splitting function of the stomach, but the latter says it is caused by the action of bacteria. Volhard and Stade have shown that this function is not only present in the stomach but they declare that it is due to a special ferment which they have named "steapsin." They give it a definite relation to the other ferments of the stomach and claim for it clinical importance. From Aldor's investigation of 18 cases he concludes: (1) That a fat-splitting process actually takes place in the stomach. After Ewald's breakfast he found fatty acid varying from 7 per cent. to 10 per cent. (2) The amount of this digestion is variable and independent of the other factors of the stomach chemism. (3) That there is no satisfactory proof that it is due to a specialized ferment.

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Two Cases of Gastrosuccorhea or Gastric Hypersecretion Associated with Atrophic Cirrhosis of the Liver.—Hewes (*Boston Med. and Surg. Jl.*, Aug. 16, 1906).—The author reports two cases of hypersecretion, one of which was a typical case of Reichman's disease and the other was intermittent hypersecretion associated with atropic cirrhosis of the liver. Special points in connection with the case are as follows: (1) At the time the cases first came under observation the prominent and definite symptoms were those of the stomach. (2) Other conditions ordinarily associated with hypersecretions (gastrectasis, ulcer) were absent. (3) Cirrhosis of the liver was present in both cases. In one, demonstrated in the post-mortem, and in the other, enlarged liver and the marked alcoholic history, made the clinical diagnosis. That stomach disturbances associated with hyperchlohydra commonly accompany cirrhosis of the liver is not unusual. But that these two cases associated with hypersecretion are the only ones recorded. Regarding the etiology he says (1) that gastrosuccorhea occurs as a neurosis independent of any discoverable pathological lesion in the stomach or elsewhere; (2) that it is ordinarily considered as a secondary condition associated with obstruction of the pylorus, hypomotility and ulcer; (3) it has no definite pathology. In some cases of the disease an infiltration of the stomach wall

similar to gastritis was present. (4) As to whether cirrhosis can be considered a cause of the stomach symptom complex, or whether the latter was due to some other cause operating coincidentally must be redirect connection, the cirrhosis being a cause, he gives the following: garded as an open question. In favor of a general conception of the (a) Stomach disturbances are commonly associated with cirrhosis; (b) abnormalities of secretion consisting of an increased or more frequently decreased amount of HCl and chronic gastritis have been observed; (c) hemorrhages and hematemesis induced by the cirrhosis occurs and hyperemia of the stomach walls is common post-mortem; (d) absence of other causes; (e) there are no medical observations to support the view that cirrhosis should be produced from the hypersecretion; (f) from these facts it is conceivable that cirrhosis could induce hypersecretion in the stomach of particular individuals.

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Typhoid Nodular Colitis.—Whipple (*Johns Hopkins Hospital Bulletin,* August, 1906).—Whipple reports a very interesting case which was characterized (1) by the absence of typical clinical findings of typhoid, the symptoms of which were overshadowed by those arising from the heart valves. (2) The intestinal lesions were confined to the colon (post-mortem). (3) These lesions correspond closely to the descriptions given by Orth and others of the so-called nodular colitis. He could find only two other cases with satisfactory reports, corresponding to this condition, in the literature. His summary in this article is as follows: (1) Typhoid intestinal lesions limited to the colon are very rare; (2) the term "nodular colitis" should be restricted to such cases as show a marked infiltration of the submucosa with wandering cells, giving rise to prominent isolated nodules having no relation to the solitary follicles which are comparatively unaffected. These cases are of rare occurrence. (3) The term lymphatic-hyperplasia may be used to describe the cases having a simple hyperplasia of the solitary follicles of the intestines and a relatively normal submucosa. These cases are commonly found at autopsy.

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The Theoretical and Practical Importance of "Head's" Zones in Affections of the Gastro-Intestinal Organs.—Kast (*Berliner Klin. Wochensch.,* July 30-Aug. 6, 1906).—Kast gives Head's theories regarding the superficial sensitive zones of the skin accompanying diseases of intestinal organs, reviews the investigations of other men regarding them (Muller, Willoughby, Scherren, Lenander and others) and reports his investigation on three hundred cases, in two hundred of which he has positive information (gastritis acida 42, carcinoma of the œsophagus 5, carcinoma of stomach 12, stomach ulcer 26, appendicitis 6, acute and sub-acute cholecystitis 6, and the remainder made up of combined conditions, such as chronic intestinal catarrh, heart and lung diseases, anemia, arteriosclerosis, etc.). He concludes from these investigations (1) that zones described by Head do occur; (2) however, that they are very inconstant; (3) that they depend not seldom upon the individual sensibility and are compared to local "neurasthenia"; (4) that the cause of perceptions of the stimulus of internal organs is

yet indefinite. He advances the idea that the oft-repeated muscular contractions may cause local anemia, or by repetition of impulses, fatigue of muscles or ganglia and thereby produce these perceptions; (5) a zone may have different forms of stimuli for its production and a differentiation is not possible for a diagnosis; (6) the zone for ulcer of the stomach is very frequently found in nervous, anemic and poorly nourished patients in whom the pain is severe. But he also found them entirely absent even in these individuals and one can draw no conclusions from their absence; also that it does not place the location of the ulcer; (7) that they are frequently found present in cholelithiosis and appendicitis, but these, especially appendicitis, occur with other conditions, iliocecal and iliocolic diseases, spasm of the colon, etc.; (8) they do not differentiate the conditions of one region; (9) a diagnosis of the stage of the disease cannot be made from them; (10) they are of value in differentiating conditions of one region from another, sometimes when the other symptoms may be common to both; (11) no conclusions as to the pathological conditions can be drawn from them.

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The Glandulary Power and Significance of the Epithelium of the Convoluti Tubules of the Kidney and the Therapeutic Value of Their Products Soluble in Water.—Renaut (*Bulletin of the Academy of Medicine*).—This author quotes the work of Heidenhaim, Regaud, Polecard, Arnold, and Overtone as confirmatory proof that the cortical portion of the kidney is formed by a mass of tubular glands each represented by a convoluted tube of which the epithelium everywhere has secretive activity, except in the ascending loop of Henle, the medullary rays and in the tubes of Bellini which follows these and which are simple excretory ducts. Also that the glomerulus diffuses electively the urinary plasma which it emits as a current in which are dissolved the products of secretion of columnar striated epithelium. That an insufficiency of this emulgent secretion would produce in the active elements of the tubes a condition detrimental to their functorial activity and that this is precisely what occurs in nephritis. In order to make active these substances in the blood itself and in the kidney where they are dormant in these conditions, the author administers extraneous kidney substance. This substance is prepared from pig's kidneys, absolutely fresh, finely chopped and washed in distilled water. As much of the medullary substance is removed as possible. The mince of the kidney is brought to a pulp in a mortar with salt solution and the mass is preserved by cold, decanted after four hours and given in doses of 400 gms. during 24 hours in beef tea. It should not be continued for more than ten consecutive days with a free intermission of four or five days. It is not decomposed in the gastro-intestinal tract and produces very slight disagreeable effects, such as uriniferous perspiration, rash and papular eruptions and sometimes nausea and vomiting. The author reports three cases in detail; one of chronic mixed nephritis and one of cardiac albuminuria with cardiac kidney, comparing results with other methods of treatment which had been given to the same cases. In these three cases subjective symptoms were relieved almost entirely, physical signs were modofied to the extent of placing the kidney and cardio-vascular system into a state of

competency and the urine was practically cleared of any abnormal constituents. His conclusions are: (1) That the macerations of the kidney when administered for urinary insufficiency constitutes one of the most active and efficient medicaments which have been utilized up to the present time for the reasons that (a) it restores the annullated kidney; (b) it accomplishes this rapidly and surely; (c) it has an intense diuretic effect; (d) when prolonged sufficiently it maintains and restores the normal urinary mission; (d) it has on deleterious effect upon the diseased kidney. (2) Its advantages over other remedies are (a) it reduces the albumen and corrects the renal insufficiency; (b) on account of the prolonged functorial rest, it favors the restoration of glandular epithelia of the kidney where such restoration is physiologically possible. (3) It is a very superior antitoxin treatment (Dubois) for it produces disintoxication (on the other hand its administration or accumulation in the system may produce slight subtoxic symptoms such as pruritis, urticaria, malaria, sweating and, after ten days, gastric trouble). (4) It has exercised its antitoxic action in a progressive and regular manner without failure. The arterial tension, the inclination of cardiac dilation, etc., have always been retarded under its influence, provided its use has been sufficiently maintained and prolonged. (5) It is a therapeutic method which should be brought into current use, not as a complete substitute for other rational methods but as an adjunct to these methods when they do not produce satisfactory results in correcting the renal insufficiency, especially when it has reached the point of pre-uremic or uremic autointoxication. (6) The great inconvenience consists in the absolute necessity for the daily and most careful preparation of the maceration of the kidney. Neither the glycerine nor the aqueous extract of the kidney substance has been successfully administrated through the digestive tract because they are to say the least, of doubtful value.

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The Nutrophiles in Babies Nourished Naturally and Artificially.—Esser (*Munchner. Med. Wochensch.*, Aug. 21, 1906).—Kurtz concluded (1) that the nutrophilic leucocytes with four or five nuclei fragments were increased for the first three or four days in babies who had been nourished by the breast; (2) that this relative number of nucleated nutrophiles was much decreased when mother's milk was suddenly changed to cow's milk; (3) that after a prolonged artificial feeding the blood picture approximated the normal adult blood; (4) that stomach diseases and atrophic conditions would cause a decrease of the number of nuclei fragmented cells and an increase in the mononucleated cells. Considering the multi-nucleated cells as the older and protecting cells of the organism, he thinks that perhaps these produce the antibodies in the blood. With their disappearance there would be in the blood a large amount of this protecting substance and with their reappearance the element of infection would be present. Contrary to this conclusion was the possibility that the many fragmented nucleated cells were the older forms of degeneration and were the first to be affected by processes of disintegration.

HEMATOMA OF THE OVARY AND CERTAIN OTHER CLOSELY ALLIED CONDITIONS.—Wilson (*Darcet*, May 26, 1906; Ref. *Post Graduate*, Vol. XXI., No. 5).—Eight cases of this rare condition are reported by Wilson in the original article. The classification is given as (1) Pathology: (a) Hemorrhage into pre-existing cavities, as Graafian follicles or ovarian cyst; (b) hemorrhage into ovarian stroma. (2) As to etiology: (a) Liopathic; (b) torsion of pedicle, or produced by (1) hernia of ovary, (2) rotation of slightly enlarged ovary; (c) toxic, as (1) acute specific fevers, scarlet fever, etc., (2) profound sepis, puerperal or general peritonitis or perforating ulcers; (d) ovarian pregnancy. The idiopathic occur with maturation of Graafian follicle. One case is described of the abdomen being opened for what was diagnosticated a perforating ulcer of stomach or duodenum. Another was the case of a woman who died from shock, on the eve of her marriage, from intraperitoneal hemorrhage from a ruptured corpus lutem. The clinical diagnosis is almost impossible to make. The two cardinal symptoms are abdominal pain and uterine hemorrhage.

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MECHANICAL EFFECTS OF EXPERIMENTAL MITRAL STENOSIS AND INSUFFICIENCY.—McCallum and McClure (*Johns Hopkins Hospital Bulletin*, August, 1906).—This article exhibits the study of the mechanical effects of mitral valvular lesions on the blood pressure of the femoral arteries, pulmonary arteries and veins and left auricle. Experimental mitral stenosis was produced on animals either by applying a screw-clamp with arms guarded by rubber tube, or passing a suture about the auriculo-ventricular ring, or by introducing a distensible balloon through the auricular appendage. Insufficiency of the mitral valve was produced by means of a hook with a blunt point and inner cutting edge introduced through the left auricular appendage into the left ventricle where the valves and chordæ tendenæ may be cut as desired. The pressure was taken by cannulæ connected with mercury manometers adjusted in various parts of the circulatory system, and the one designed to register the pressure in the left auricle tied in the aperture in the auricular appendage. (1) In mitral stenosis the general arterial pressure is decreased and the pressure in the pulmonary arteries, veins and left auricle is increased. Pressure in the systemic veins is little if at all increased, unless there arises a dilatation of the right ventricle and relative insufficiency of the tricuspid valve. (2) In mitral insufficiency the general arterial pressure is decreased in the relation to the amount of insufficiency. The pulsation is not generally altered. Pressure in the pulmonary artery is relatively little altered; with extreme insufficiency it generally sinks with general arterial pressure; with slight insufficiency it rises, but not very high. Pressure in the left auricle is markedly increased and the curves show greater excursions which are due to the contraction of the ventricle. The systemic venous pressure is not greatly altered. From these experiments, and others in which the pressure was taken separately from different chambers of the heart and compared with pressure in different vessel-systems, they conclude as follows: There is less cause for hypertrophy of the right ventricle in pure uncomplicated mitral insufficiency than in mitral stenosis or mitral insufficiency

associated with myocarditis, or other causes for inadequate work of the left ventricle. The cause in those cases in which the registration and the activity of the left ventricle are such that there is a constant residuum of blood in the pulmonary vessels greater than normal, consists in the rapid rise in tension during systole to a point above maximum normal tension requiring an excessive effort of the right ventricle. This is also increased by the reflux of blood from the left ventricle toward the end of systole; the effect of which is felt by the right ventricle before the end of systole. Even when there is no constant residuum of blood in the pulmonary circulation this hyperextension is transient due to the regurgitation toward the end of systole.

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Ehrlichs Diazo Reaction in Pulmonary Tuberculosis.—Wolmgren (*Zeut. Tub.*, VIII-4, 1906).—The author attempts to determine the prognostic significance of the diazo reaction of the urine in pulmonary tuberculosis. He says that (1) a strong positive diazo reaction indicates a terminal stage of the disease and that the duration of life after this is present is at most six, the average two months; (2) a distinct but not strong diazo reaction indicates a duration of life of eighteen months at most, the average six months; (3) indistinct or negative reaction is a favorable prognostic sign even in cases of extensive lung involvement.

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The Diagnostic Application of the Endoscope in Disease of the Lungs.—Hermann von Schroter (*Weiner Klin. Wochensch.*, Aug. 16, 1906).—From a large number of cases upon which the author has used the bronchoscope for diagnosis of diseases of the mediastinum and lungs, he reports three cases, two of which were primary carcinoma of the lung. These cases were diagnosticated by means of direct inspection of the lesion through the bronchoscope and he says he believes that by the use of the bronchoscope many malignant growths of the lungs can be diagnosticated positively, but that the diagnosis can also be made in many cases without this aid (physical findings, x-ray, etc.). That only when the differential diagnosis as to the pathological process of the lung and mediastinum is to be established are the bronchoscopic and laryngeoscopic examination of value. In primary carcinoma of the bronchi or œsophagus, tumors of mediastinum and aneurism, these special means of diagnosis are of great help and may be combined with esophogoscopy. He does not consider an aneurism as a special contraindication of examination of the trachea and bronchi or esophagus, and he concludes that bronchoscopy is indicated and of value in indefinite diseases of the lungs as an aid to diagnosis.

# PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

EXPERIMENTAL STUDIES ON CARCINOMATA OF MICE.—Ehrlich (*Arb. ausd. Koenigl. Inst. fuer Experim. Therapie zu Frankfurt a. M.*, Heft. 1, 1906. Jena. Fischer).—The twenty and odd pages of this work weigh more than a whole room in a library filled with what is written so far on the nature of carcinomatous tumors. Ehrlich's work bids fair to form the first secure stepping stone in the solution not only of problems of cancer, but of general biology. Heretofore investigations into the origin and growth and biologic character of carcinoma and other tumors always began by searching for a demonstration of preconceived ideas; that all of it failed is well known; so well known that we became despondent, and lately a lethargic state had obtained in the investigation of cancer questions. The origin of cancers has remained obscure after the conviction was gained that the different explanations proposed were not based upon established facts. The most varied hypotheses were advanced, but none of them bore the light of scrutinizing investigation. It is true that our detailed knowledge of cancer has been greatly increased through the work of single investigators, cancer laboratories and other institutions, but it is the general opinion that this work has not advanced us one step in penetrating into the mysteries of malignant tumors. The study of animal tumors and the demonstration by Jensen of the transplantability of carcinomata, occurring spontaneously in mice, on other animals of the same species, offered a prospect for hope. Here also, however, it must be said that in spite of a great amount of careful and valuable work the results remain disconnected and without meaning. Not until Ehrlich considered its nature and possible value was a solution offered concerning these primary problems. It at least furnished a means for experimentation after it had created a working basis, a basis that until then only yielded isolated data without definite relation to each other. Ehrlich studied the work that had been done by others, added to it by exhaustive and systematic investigation of a series of nearly 100 primary mouse carcinomata, and thus gained the possibility of comparison; comparison led to experimental research in directions suggested by it. The results of his work have been so definite that they will mark the beginning of a period that has at last opened a way to reveal the secret of tumor growth.

Ehrlich's attention was first directed to the difficulty of transplantation of mouse carcinoma to normal mice. The number of "takes" is only two per cent. On the other hand he succeeded gradually in increasing the virulence of such a tumor, that is the number of "takes," by successively transplanting from the primary spontaneous tumor the secondary tumors grown in the infected mice. Thus he obtained in some cases, tumors in which the "takes" amounted to from 90 to 100 per cent. This he could explain only as being due to a form of immunity in non-susceptible animals. The study of this immunity led to the most surprising

findings. A certain mouse sarcoma is implantable on rats where it grows for a short time very rapidly, then grows slowly and gradually disappears. If at the time of its growth in the first rat it is implanted on a second rat there is in no case a "take." If it is implanted into a mouse it grows as before and shows all of its virulence as in the primary mouse. These experiments show that the immunity of the rat cannot be due to antibodies because in that case even the initial growth would not be possible. During the limited time of its growth, however, no antibodies are produced because if transplanted to a mouse it exhibits its typical character. Ehrlich's interpretation of this phenomenon is very original; the assumption of a substance, present in the mouse and absent in the rat, necessary for the proliferation of cancer cells, a substance that is food for them and is assimilated. The transient growth in the rat is due to the presence of this substance in the transplanted piece of tissue; it enables the latter to grow for awhile, but after it is exhausted the growth must cease. An analogon for such conditions is presented in the cultivation of the influenza bacillus from sputum where the bacilli are readily grown from sputum on ordinary media though no culture from these growths can be made. This is due to the presence of some hemoglobin in the sputum inoculated which is absent in the second culture and which we know is essential to the growth of the bacillus. For this reason Ehrlich calls this immunity atreptic. The substance present in mice is certainly one that is assimilated by all of their cells in different degrees according to the functions of these cells in the organism. In other words, the different cells have for it a different degree of affinity as for other nutrient substances, perhaps a smaller or larger number of receptors. If the degree of affinity for carcinoma cells and for tissue cells is the same, no proliferation of the tumor will occur; if the number of the latter is diminished the carcinoma cells will draw a larger supply of the substance, their avidity will be greater and a more active growth will ensue. A very interesting explanation of the frequent absence of microscopically visible metastases in cancer of mice (microscopically they are always demonstrable in the lungs) on the basis of this atreptic immunity cannot be detailed here. Nor can more than a rough outline be given of the many observations that led to the author's conclusions.

An active immunity can be demonstrated in animals that are inoculated with cancer material, or in which a cancer disappears spontaneously as has been observed in a number of cases. For these experiments tumors of the utmost virulence were used (100 per cent.). The results of such a second inoculation have been negative in all cases. Even those mice that had been inoculated without success with one of the primary not very virulent growths, were immune against the injection of the most virulent form. In some instances this active immunization caused the disappearance of a growth produced by a previous inoculation. Ehrlich's experiments are so definite that the subject of an active artificially produced immunity from cancer as regards animals is an established fact. The antibodies produced by it are not specific since they seem to act as well against carcinoma as against sarcoma; furthermore, experiments have made it highly probable that other tumors are influenced. Ehrlich

has had very suggestive results with a mouse chondroma. According to his side-chain theory this is explained by the presence of at least some receptors identical in all cells of an organism.

This interpretation of the development and growth of malignant tumors is based on facts; the exactness and reliability of the experiments that established them can in no way be doubted. Ehrlich's work does not touch directly upon the question of origin. He accepts the congenital origin from displacement of fetal cells, the trend of opinion originated by Cohnheim. He has emphasized this theory by stating that in his experience he has met with instances of long lasting latency of the malignant cells. [To this I may add the very frequent clinical observation of metastases occurring many years after removal of the primary focus; the assertion that detached embryonal cells cannot remain quiescent for a long time and that therefore they could not be at the base of tumor formation, is thereby contradicted. What obtains for tumor cells may obtain for embryonic elements. In fact the teratomata directly prove it.—Ed.]

There can be no doubt that Ehrlich's work has opened a way to a practical dealing with cancer and, perhaps, with other tumors. There is no getting around the fact that immunity against their destructive influence can be produced with absolute certainty for animals, at least; whatever the word immunity may mean later, we will be able to protect mice against the spontaneous or artificial growth of carcinoma or sarcoma. Ehrlich himself calls this the first breach in the fortifications of the enemy. It may take a long time till the conquest is complete, but the strength of the enemy is already partly undermined and in a reasonable time human cancer also will be defied.

Many readers and critics of Ehrlich's paper will raise the usual objection that many of its views are based on a theory that is said to have been proved by others to be faulty and not true, as far as truth is concerned in the matter. If Ehrlich has done nothing else than to apply his side-chain theory to a problem of the most intense scientific and practical importance and by this application has arrived at facts which by their very character put the solution of vital difficulties of the human race within our reach, he has again proven the immense value of the heuristic capacity of his theory and added a new laurel to his wreath. As stated above, Ehrlich's paper will open a new era in the fight against malignant tumors, a fight based on definite knowledge and begun with the recognition of the intimate nature of the methods of the enemy. Perhaps the physical chemists and colloidal enthusiasts will endeavor to make Ehrlich's substance X, submissive to their laws; in this they will succeed as little as they did in regard to other antibody reactions. Ehrlich's theory may not hold forever, but for the present it is the only one that permits an extension of our knowledge of many biologic problems and makes us masters of situations, before which any other theory has failed.

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Experimental Cerebro-Spinal Meningitis and Its Serum Treatment.—Flexner (*Jl. Amer. Med. Ass'n.*, Aug. 25, 1906).—Flexner's contribution to our knowledge of the etiologic role that the meningococcus plays in cerebro-spinal meningitis is very important and highly suggestive. The study of cultures of the coccus has set into a proper light its

peculiarities of great sensitiveness to osmotic changes and the ensuing easy disintegration. It showed in the filtrates of autolyzed cultures the presence of a toxic substance that in small (0.1 cc.) doses injected intraperitoneally into young guinea pigs, caused death in four to twenty-four hours. That the toxin (endotoxin) contained in them behaved like the so-called aggressins described by Bail was demonstrated by the death of the guinea pigs injected with a mixture of small amounts of the autolysate and of a non-fatal dose of the living cocci. The intraperitoneal injection of cocci into guinea pigs causes peritoneal lesions, an exudate only with slightly virulent cultures. Very virulent forms kill in a time too short to allow of a leucocytic exudation. Whether the effect on an animal is in all cases only toxic or due to the multiplication of the cocci cannot be definitely determined. The probability is that multipilcation occurs only to a very slight degree or not at all. In monkeys by virulent culture, a typical picture could be produced by intraspinal injections. The meningeal lesions resemble very much those found in man, an exudation being found at the base of the brain. (An interesting observation is, that in the nasal secretion of these monkeys these diplococci were demonstrated, a point that, considered in connection with the place of injection —spinal canal—throws some doubt on the pharyngeal or nasal port of entrance of the virus into the human subject.) The attempt at producing an anti-serum, a priori not very hopeful, nevertheless, succeeded. Of the animals used, the goat proved to be the most suitable. It furnished a serum which in the dose of 0.1 cc. protected a young guinea pig (adult guinea pigs are not susceptible to the infection) from the effects of the fatal dose of a culture. In four monkeys (macacus species) the result was positive in three; the injection was made into the spinal canal with a mixture of antiserum and culture, with the culture and four hours later the serum, and with the culture into the canal and the serum somewhat more than two hours later subcutaneously. One macacus injected intra-spinally with serum two hours after the culture injection, died.

Flexner himself sums up the results of his work in the following words: The experiments have possibly some value in aiding us to understand better the manner in which the diplococcus brings about its peculiar effects in human beings. They would also seem to show that the diplococcus is an organism possessing highly interesting and very peculiar biologic qualities. The special experiments dealing with the prophylactic and therapeutic properties of anti-sera prepared from the diplococcus are sufficiently encouraging to be more widely and closely studied. In how far the results obtained on guinea pigs and monkeys can be applied to the prevention and treatment of cerebrospinal meningitis in man is not safe to predict. Should further experiments show that subcutaneous or intravenous injections of culture can favorably modify the experimental disease in monkeys, the case will not be without hope. I do not think that the injection of alien sera into the spinal canal of man should be undertaken until their physiologic action has been worked out in more detail in monkeys. Were it practicable to employ monkeys for producing the anti-sera to be used in man, the danger of serum-intoxication might be lessened, while the good effects of the immunity principles were retained.

# DIAGNOSIS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

THE REGISTRATION OF THE BEAT OF THE LEFT AURICLE.—Minkowski (*Deutsch. med. Wochenschr.*, 1906, No. 31.)—The pulsating cervical veins register very satisfactorily the changes in blood pressure that occur within the right auricle in cases of tricuspid insufficiency. As yet, however, there have been no satisfactory methods of studying the changes in form of the left auricle, though it is clear that these changes are of still greater importance from their intimate connection with mitral disease. Minkowski's method is as follows: A rather stiff stomach tube is used, with a lateral but no terminal opening. Over the end is slipped a rubber condom which is firmly tied with stout thread above and below the lateral window. The tube so prepared is swallowed and its other end then connected by means of a T tube with a rubber bulb and a manometer. By means of the bulb the tube is then inflated until the condom lies closely against the walls of the esophagus. The manometer will then register upon a revolving drum the changes in pressure at the window of the stomach tube. Soon after having passed the larynx the end of the tube will lie behind the aorta and the apparatus will register the changes in form of that vessel. Somewhat lower, 32-35 cm. beyond the incisors, the window lies behind the left auricle and will register the changes taking place there. As yet the method has chiefly a physologic interest, but as the writer points out and illustrates by means of an instructive case, the method may well be of value in the diagnosis of obscure cardiac affections.

THE SEDIMENTATION OF SPUTUM BY MEANS OF HYDROGEN PEROXIDE.—Sachs-Mueke (*Muench. med. Wochenschr.*, 1906, No. 34).—If hydrogen peroxide be added to a purulent sputum an active effervescence takes place during which all lumps and masses of pus and tissue are violently torn apart and the sputum converted into a more or less homogeneous mass. Upon being allowed to stand, the sputum separates into three layers; an upper one consisting of froth, a middle clean fluid layer and at the bottom a solid mass consisting of detritus and micro-organisms. In this lower layer, bacteria of all sorts, especially tubercle bacilli, can be found very much more readily than in the original sputum. The addition of one part per thousand of bichloride to the peroxide of hydrogen makes possible a still further extension of the method. If this mixture be placed in a vessel by the side of the patient and the latter directed to expectorate into it, the entire 24 hours' amount of sputum may be collected without danger of infection. Whenever it is desired to examine the sputum, the disintegration and sedimentation will usually be found to have taken place and the material at the bottom of the vessel will be suitable for examination.

EXCEPTIONS TO COURVOISIER'S LAW.—Moynihan (*Edinburgh Med. Jl.*, May, 1906).—As is well known, Courvoisier has established the rule that

in cases of chronic icterus, a large, tense, palpable gall-bladder speaks for carcinoma, whereas a small gall-bladder that cannot be palpated speaks for cholelithiasis. In his extensive operative practice Moynihan has found that this rule holds true in ninety per cent. of all cases. Exceptions to the rule occur, however, in a number of conditions. Thus when a stone in the cystic duct causes a hydrops or an empyema of the gall-bladder, or when to a stone in the choledochus is added an acute cholecystitis, a large palpable gall-bladder will evidently result. On the other hand a carcinoma of the ductus choledochus, or of the head of the pancreas, if combined with a sclerotic cholecystitis, may result in a small, impalpable gall-bladder.

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Orthopercussion, Orthodiagraphy and Relative Cardiac Dulness.—Treuper and Engels (*Zeitschr. f. klin. Med.*, Vol. 59, No. 2).—The writers have compared the areas of cardiac dulness obtained by various methods of percussion with the picture obtained by means of the x-rays (orthodiagraphy). Of all the methods tested the most accurate results were obtained by means of the so-called orthopercussion. One of the fingers of the left hand is held rigidly bent at a right angle, and using this as a sort of staff-plessimeter, a finger of the other hand percusses upon the distal epiphysis of the first or second phalanx as gently as possible. The outlines so obtained correspond very accurately to the true shape of the heart.

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The Demonstration of Tubercle Bacilli in the Blood of Consumptives.—Luedke (*Wiener klin. Wochenschr.*, 1906, No. 31).—Tubercle bacilli have frequently been found in the blood of miliary tuberculosis; the writer, however, has demonstrated their presence in the blood of ordinary pulmonary phthisis. By means of a syringe he took five or ten cc. of blood from a vein and injected this into the peritoneal cavity of guinea pigs. In four cases the animals developed tuberculosis. While a negative result is thus without significance, a positive outcome may in an obscure case have diagnostic value.

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Lateral Movements of the Head Synchronous with the Pulse in the Differential Diagnosis of Aortic Aneurisms.—Bocciardo (*Jl. Policlinico*, 1906, No. 2).—In certain cases of aortic aneurism the head is impelled to the right or the left synchronously with the heart beat. In the former case the aneurism usually will be found to involve the descending aorta, in the latter the ascending aorta, the innominate or the right subclavian.

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Leucocytosis During Pregnancy.—Given (*Jl. of Obst. and Gyn.*, April, 1906).—A marked leucocytosis immediately after labor is without diagnostic significance since it occurs normally. This leucocytosis disappears rapidly and is replaced during the period of involution by a marked lymphocytosis. The more outspoken the latter, the more satisfactorily involution is taking place. Towards the end of pregnancy a moderate degree of leucocytosis is usual.

# THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.,

TREATMENT OF ACUTE ARTHRITIS BY THE INTRAVENOUS INJECTION OF COLLARGOL.—Riebold (*Muench. Med. Woch.*, Aug. 7, 1906) used intravenous injections of collargol in 15 cases of various joint affections—7 cases of gonorrheal arthritis, 2 of acute rheumatic polyarthritis, 4 of subacute rheumatism and 2 of septic arthritis. Eleven cases were completely cured, four were improved. The collargol was given in doses of 4 to 10 cc. of a 2 per cent solution, 4 to 8 cc. at the first injection, 6 to 10 cc. in subsequent ones. The frequency of the injection depends upon the individual case. Recurrence of swelling in the joint, return of the fever or pain are immediate indications for repetition of the injections. The primary effect of an injection is an amelioration of pain and an improvement in the general condition. A diminution of the distention of the affected joint may be very prompt, or may require several days. In cases where serious anatomical changes have been produced collargol injections are frequently followed by complete re-establishment of motion.

TREATMENT OF PULMONARY TUBERCULOSIS BY BIER'S METHOD OF PASSIVE HYPEREMIA.—Leo (*Berlin. klin. Woch.*, No. 27, 1906) strives to produce a hyperemia of the lungs by placing the patient on his back and elevating the head and legs. This position is to be retained four hours per day. The method has in the main been successful. In two of the thirty patients hemoptysis occurred; occasionally epistaxis was observed. In some patients dizziness and fulness of the head appeared. In the majority of the cases the posture was well borne. The usual treatment in pulmonary tuberculosis is not to be neglected.

THE INFLUENCE OF MINERAL WATERS UPON THE SECRETORY FUNCTION OF THE STOMACH.—Bickel (*Berlin. klin. Woch.*, No. 2, 1906) finds that the ordinary carbonated waters (Apollinaris) act wholly through their carbon dioxide content, which stimulates gastric secretion. The waters containing chiefly sodium chloride also stimulate secretion. Other alkali salts of hydrochloric acid (selters, emser) act in the same way. The alkaline salines (Carlsbad) have a slight tendency to inhibit gastric secretion, and purely alkaline waters (Vichy) have a more decided inhibitory action. The waters of the class of Hunyadi-Janos produce almost complete inhibition of secretion.

THE THERAPEUTIC VALUE OF HYDROCHLORIC ACID IN DISEASES OF THE STOMACH.—Chase (*Boston Med. and Surg. Jl.*, Sept. 14, 1906) carried out experiments on three cases of chronic gastritis and achylia gastrica. In four experiments small doses of hydrochloric acid were given twenty minutes after a test breakfast, the meal being removed forty minutes later. The total acidity was increased in all experiments, and free acid found in three. When larger doses were given in the full meals, which were removed in one hour, an increased acidity was

noted but no free acid. Enough acid could not be given to make good the deficiency in secretion of acid. Long continued administration of acid failed to increase the secretion of hydrochloric acid, and in one case apparently diminished it. Peptic digestion was on the whole accelerated. The writer concludes that while hydrochloric acid appears to improve certain symptoms, it is doubtful whether, objectively, it influences favorably any function of the stomach.

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Treatment of Hemorrhage of the Intestinal Canal.—Passier (*These de Paris*, 1904) describes the method of Mathieu as follows: An enema of 1l. of hot water at 48°C., containing two grams of calcium chloride, is given twice daily. It is administered very slowly under very slight pressure. At the same time two grams of calcium chloride per day are given by mouth in aqueous solution and, if necessary, small doses of opium or bismuth may be given. The calcium chloride is usually well borne, though it may produce headache. It should not be used if the kidneys are not sound.

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## SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

Radical Cure of Femoral Hernia.—Baldwin (*Lancet.* Abs. *Jour. Amer. Med. Assn.*, Aug. 18, 1906).—For some years past Baldwin has been practicing the following operation for the cure of femoral hernia, with a uniformly successful result. He has performed the operation about twenty times; all the wounds healed by first intention and caused no trouble whatever. The method of operation is described as follows: A curved incision about 1½ or 2 inches long is made over the saphenous opening. The sac is isolated and more or less cleared of fat. If not already back, the hernia is reduced. A slightly curved hernia director is now introduced up the crural canal in front of the sac and when its point is behind Poupart's ligament it is moved laterally so as for a short distance to strip off the peritoneum from the posterior surface of the transversalis fascia. The point of the director is now pushed farther upward and tilted forward so as to make the aponeurosis of the external oblique muscle project about half an inch above Poupart's ligament. A small transverse incision is then made through the aponeurosis, parallel to its fibers, on to the point of the director, which is now pushed up through the opening. The latter is only just large enough to allow of this being done. A sinus forceps, Spencer Wells forceps, or small nasal polypus forceps—the last, being slightly curved, is more convenient—is now introduced through the opening, passed behind Poupart's ligament, and made to project from the saphenous opening; as this is done the director is withdrawn; in its descent it guides the forceps and prevents it from catching. The fundus of the sac is now seized by the forceps, which is completely withdrawn, dragging the sac out through the opening in the external oblique aponeurosis. The

sac is pulled out as much as possible and ligated at the top of its neck. By this maneuver no pouch is left in which recurrence may take place. A suture is then passed through the fundus of the sac, the suture is drawn through to its middle and then tied, thus leaving two free ends of equal length, or this may be done before the sac is pulled up through the opening in Poupart's ligament, the thread being seized by the forceps and used to pull up the sac. If the sac is large, however, the thread may tear out and time be lost. One end is threaded in a strong curved needle, one which will not rotate in the forceps which grasps it. The needle is now passed backward and forward through the sac several times, starting at the fundus and finishing at the neck, as described by Macewen, for puckering the sac. The needle is grasped in forceps, or a needle on a handle may be used, and its point is passed through the hole above Poupart's ligament, through the neck of the sac, down to the transverse ramus of the pubes, then by a turn of the wrist the point is made to slide forward across the pubic bone, as close to it as possible, then to pierce the pectineus muscle and to appear through the inner part of the saphenous opening. The needle is pulled through, bringing its thread with it. By drawing on the thread and by tucking the sac back again through the hole above Paupart's ligament by means of a stout probe or similar blunt instrument, the sac disappears from view and comes to rest in a puckered-up condition behind the transversalis fascia and at the top of the crural canal, which it effectually roofs in. By this time the other end of the thread is hanging out of the opening above Poupart's ligament. It is tied rather firmly, but not too tightly, to the thread which projects from the saphenous opening; this fixes the sac in its place, and fixes Poupart's ligament to the pectineus muscle, so obliterating the crural canal. If necessary, a second suture may be put in for this purpose, but nearer the pubic spine. A suture is put in to close the hole above Poupart's ligament and the skin incision is closed. Thus there are three distinct checks against the recurrence of the hernia: (1) The sac is ligatured higher up than is possible by the ordinary method and leaves no peritoneal pouch; (2) the sac is used as a buffer or roof above the crural canal; and, (3) Poupart's ligament is approximated to the pectineus muscle and obliterates the crural canal. It may be urged that the sac will slough and cause trouble. This does not take place. It no doubt becomes vascularized, converted into granulation tissue, and ultimately into fibrous tissue.

In strangulated hernia, when it has seemed safe to leave the sac, and when time was precious, the author has modified the operation by pushing the sac up through the canal, after having made a little space for it as before, and then sutured Poupart's ligament to the pectineus muscle.

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On the Technic and the Results in the Excision of Cancer of the Head and Neck.—Crile (*Penn. Med. Jour.*, Sept., 1906).—Cancer of this region rarely show secondary foci because of the distribution of lymphatics. The collar of lymphatics of the neck forms an extraordinary barrier through which cancer seldom penetrates. Metastases when they do occur, are always somewhere within this lymphatic collar and accessible, consequently this region offers a more favorable field for operation than cancer of the breast, stomach and rectum with their metastases. Incom-

plete operations only cause greater dissemination and more rapid growth. The logical technic is that of block dissection of the regional lymphatic system with removal of the primary focus as is done in the Halstead operation for cancer of the breast. The handling of all carcinomatous tissue should be avoided so long as the lymphatic system remains intact for the further dissemination of the growth. The immediate dangers attending such operations are, infection, local and broncho-pulmonary, then hemorrhage, shock and exhaustion. The greatest infection danger is when the mouth or air passages communicate with the dissection. In cancer of the tongue or larynx, a preliminary tracheotomy is attended with a wall of granulations which is a protection to the pulmonary organ. In cancer of the tongue the anesthetic should be given through two rubber tubes passed into the pharynx opposite the epiglottis, through the nares. Then after pulling the tongue forward, gauze is packed into the pharynx which prevents the inspiration of blood at the time of operation and eliminates the danger of broncho-pulmonary infection from this source. Arterial hemorrhage is best controlled by temporary closure of the common or external carotid. Permanent closure of the common carotid should be avoided. Venous hemorrhage may be minimized by placing the patient in the upright position and making a sufficient and even pressure upon the lower extremities, and the trunk up to the costal borders to prevent gravitation of blood.

The important shock-causing factors are the number and intensity of surgical contacts, as forcible retraction, vigorous sponging, blunt dissection, etc., loss of blood, mismanaged anesthesia and the duration of the operation. The principal factors causing collapse are, interference with the vagus, hemorrhage, air emboli and anesthetic accidents. Consequently causes of shock and collapse should be avoided as much as possible. The paper is based on a personal experience of one hundred and thirty-two cases. The immediate mortality rate was eight per cent. Crile believes that the complete block dissection will give as good a cure per cent. here as the operation for cancer of the breast, if not better. On account of the field being exposed, earlier diagnosis of cancer of the head and neck should be made than in the case of the stomach, intestines, or even the breast, thus giving an opportunity for early operation.

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Antitetanic Serum in Fourth of July Injuries.—Scherck (*Jour. A. M. A.*, Aug. 18, 1906).—Scherck gives the result of 170 cases of injury incident to the Fourth of July celebration in which he used antitetanic serum without the development of a single case of tetanus. The injuries were of the usual Fourth of July character, consisting of wounds caused by toy pistols, giant crackers, etc. The cases were handled at the City dispensaries of St. Louis. The following procedure was resorted to in each case: 1. Free incision of every wound. 2. Thorough removal of all foreign material from wound. 3. Cauterization of wound with 25 per cent. carbolic acid solution. 4. Application of loose wet pack of 2½ per cent. solution of carbolic acid. 5. Injection of contents of package of immunizing serum containing 10 cc. into cellular tissue of abdominal wall; the injection to be made under the most careful asepsis.

The above report of cases together with cases previously reported by

Scherck gives a series of 291 cases in which the serum treatment was used without the development of a single case of tetanus. The fact that in 56 cases treated in 1903 without the antitetanic serum there were 16 deaths from tetanus makes the article convincing. In some cases the serum was injected as late as four days after the injury, yet not a case of tetanus developed.

## ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

THE OPEN TREATMENT OF FRACTURES.—Martin (*Surg. Gyn. & Obs.*, August, 1906).—The cases of recent fracture, uncomplicated by wounds, which imperatively call for surgical intervention, are extremely few. Simple fractures can as a rule be treated by splints and bandages, supplemented at times by extension, with completely satisfactory results. The permanency and completeness of cure are proportionate to the accuracy of reduction and retention. The wounds necessitated by the open treatment of fractures are more prone to suppurate than are those made in the performance of other operations, this partly because foreign bodies are buried in the wound, but mainly because, as a result of prolonged manipulation and rough handling, and the use of tools ill adapted to the purpose, there is left at the end of operation, a large amount of tissue so hopelessly devitalized that an abundant culture material is provided, for even the slight infection which inevitably takes place during the course of the most carefully conducted operation. As to the selection of the individual method of holding bones which cannot be placed in proper relation to each other without operation, the following rules are laid down: Comminuted fractures of the shafts of long bones are best secured by wrapping with silver wire, supplemented by the application of screws or silver plates; oblique fractures, two screws driven in at right angles to the line of fracture, of such length as to pass completely through the bone; transverse fractures of the long bones, the silver plate has its chief applicability. In fractures involving joint surfaces, the catgut or wire suture is most serviceable. Intercondylar fractures are best treated by the application of a rod provided with a nut at each end.

THE TREATMENT OF CONGENITAL DISLOCATION OF THE HIP BY INCISION.—Bradford (*Surg. Gyn. & Obs.*, August, 1906).—After the preliminary stretching, the head of the femur should be reduced by manipulation, as far as practical, and passed under the acetabular rim. The patient is then placed upon the side and incision made, passing from the anterior superior spine obliquely backwards and downwards. When the head is cleared by blunt dissection, the limb should be twisted in such a way as to bring the head as far forward as possible, and a cross-incision made in the capsule, where it is joined to the head. The cut

portion of the capsule on the side nearest the acetabulum should be seized by pressure-forceps and secured by pincers. The attachment of the capsule to the lesser trochanter and to the femoral neck should also be severed. The capsular lumen should then be thoroughly inspected. The head should then be passed through the capsular lumen well into the bottom of the acetabulum. It should here be secured by passing through the neck of the femur silk or chromicized catgut sutures, and tying them with the silk sutures which have been passed firmly through the capsules.

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Subtrochanteric Osteotomy in Adults.—Soutter (*Amer. Jour. of Orth. Surg.*, July, 1906.).—The symptoms for which the operation was done were impossibility to stand, pain in the back and knee, or leg, difficult walking, lameness, shortening, stiffness, lordosis and inability to sit, walk or stand. The report includes 25 cases and the deformities were the result of hip-disease. Two cases only had a few degrees of motion. Shortening varied from two and three-quarters to seven and three-quarters inches. The operations consisted of linear osteotomies. The after treatment required rest in a recumbent position for six weeks, with the limb corrected in a plaster bandage, extending from the nipples to the toes. After the sixth week, a short pelvic plaster was applied and the cases were up and about. Ultimate positions 20 degrees to 25 degrees abduction, no permanent flexion, no lordosis. There was no pain or discomfort in any case eighteen months after operation. Standing was easy three to nine months after operation. Health after operation was greatly improved. Relative shortening in 23 cases nothing; in two cases one and one-half inches. One of these two cases had six inches shortening before operation, and the other had seven and three-quarters inches.

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Fracture of the Fifth Metatarsal Bone by Inversion.—Cotton (*Boston Med. & Surg. Jour.*, Aug. 30, 1906).—The consequence of overlooking fractures here is not very grave; probably permanent disability never follows, but it is better to get things right than wrong, irrespective of any serious results from error in diagnosis. The author has recognized six cases in the past three years. The history of trauma, as given by the patients, is not suggestive of violence enough to produce a fracture. The patient has, either through a sudden motion or in a mis-step, trodden on the outer side of the foot. Disability is never extreme. The complaint is that the outer side of the foot is lame, and that the patient cannot rise on the toes. On examination we find a little swelling, with little or no ecchymosis. There is pain and tenderness about the base of the fifth metatarsal, localized and distinctly forward of the back end of the bones. There is pain on pressure inwards of the distal end. If the case is seen late, there will be a callus slight in amount but distinct. Treatment consists in the use of a plantar splint for a week, then adhesive strapping and careful use after ten days.

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A Study of Plaster of Paris Bandages.—Meisenbach (*Amer. Jour. of Orth. Surg.*, July, 1906).—The essential things of value for a good

plaster dressing for practical purposes are strength, quick set, light weight, ventilation. Chloride of sodium in small amounts hastens the set; in large amounts retards it. In any amount it weakens the dressing by decreasing the crushing force and tenile strength. Dextrin in small amounts strengthens the dressing, but lengthens the time of set in direct proportion to its use. Starch in small amounts adds to the strength. It does not interfere with the set of the bandage. Portland cement, when used in the plaster of Paris bandage, materially strengthens it in all its essentials, at the same time reducing the time of set and density. The dressings where cement is added are of a light sage color and are not easily affected by perspiration. They are much stronger and lighter than pure plaster dressings. The author describes at length his experiments to determine the tensile strength, the crushing force, the porosity and time of set of the various kinds of plaster bandages commonly in use.

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Mechanical Rotation of the Normal Spine.—Keene (*Amer. Jour. of Orth. Surg.*, July, 1906).—These experiments were made upon two cadavers, one a full-term female infant, the other a male adult of twenty-two years. It was discovered that rotation of the vertebræ may be produced when the extremities of the spine are fixed by pressure upon any of the intermediate ribs; that in general the vertebræ articulating with the ribs on which pressure is applied show the greatest rotation, though exceptions occur that are probably characteristic only of an individual spine; that distortion of the ribs occurs in somewhat of a proportion to the amount of force employed after the initial resistance of the rib is overcome. The most effective points for pressure and counter-pressure are upon corresponding ribs, as far as possible from the mid-line anteriorly and posteriorly. Practical fixation of the upper dorsal spine is attained by locking and holding the shoulders in an extreme backward position.

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## GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. Johnson, M. D.

Ligature of the Renal Vein.—Jungano (*Ann. des Mal. des Org. Urin.*, Aug. 1, 1906).—After an extended experience in experimental work on animals, and a careful study of the results, the author finds that he must agree with the opinion of those who consider it good surgical practice to do nephrectomy in cases of wound of the renal vein, rather than practice ligature. It is better to preserve the organism from the dangers produced by the presence of an organ undergoing degeneration than to hope for the possibility of preserving it, either through the normal or abnormal collateral circulation. Again, to preserve to the kidney its collateral circulation, it is necessary to respect the fatty capsule, and, consequently, to ligate the vein by the abdominal

route. This procedure is difficult, and exposes the patient to all the perils of prolonged contact of the intestines with the air, with the hope only of obtaining a result almost impossible.

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The Accurate Delineation of Tuberculous Foci in Early Disease of the Kidney in Women Before Operation is Undertaken.—Fenwick (Reprint, *British Med. Jour.*, Jan. 27, 1906).—While the diagnosis of primary tuberculous kidney in women is comparatively easy when the cardinal symptoms are present, yet there are certain latent cases in which these symptoms are absent, and in which no symptoms exist to help one to a correct diagnosis of kidney trouble at all. Here the cystoscopic view will lead you to a proper conclusion. The author calls especial attention to the fact that a displaced, retracted ureteric orifice, and a bladder only slightly eroded, mean a tuberculous kidney. Furthermore, the location of the disease in the kidney can be accurately determined, if there is an absence of other infection. There are dense adhesions at the upper and lower poles of the kidney, the ureter is thickened, and the upper and lower calices are eroded by tuberculous ulceration.

That these deductions may be drawn, he explains in the following manner: The retracted, displaced, ureteric orifice points to a thickened ureter, shortening lengthwise. This involves narrowing and obstruction of the channel of the ureter. This again spells back pressure of urine upon the thickened, unyielding pelvis, and a tough renal parenchyma; for all these kidneys are small and tough, and many show, microscopically, interstitial nephritis. This back pressure on the pelvis invariably means that the upper and lower calices will suffer, for the upper and lower poles of the kidney suffer first in all back pressures, consequently the stress of the tuberculosis must fall chiefly on these traumatised areas. Hence they will be eroded. Spreading from the eroded, ulcerated surfaces of the upper and lower calices, and radiating to the cortex, there will be, if the stage be an early one, tuberculous changes. This latter means miliary tubercle and inflammation of that part of the cortex—namely, of the upper and lower poles of the kidney. This, again, demands tough adhesions. A retracted ureter always means a thickened, lead-penciled-sized ureter which can be felt per vaginam, but a thickened ureter is not always a retracted ureter, neither does it always means tuberculosis. A thickened ureter merely means chronic ureteritis. It is the extreme shortening and retraction of the ureter and of the orifice which seems characteristic of this particular type of renal tuberculosis.

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A Modified Operation for Movable Kidney.—DaCosta (*N. Y. Med. Jour.*, Aug. 4, 1906).—In many cases of movable kidney it is unwise to operate at all, the use of a properly applied corset being relied upon to keep the patient comfortable and safe; but in a case in which the kidney exhibits trivial mobility, but in which the range of mobility is found to be gradually and certainly increasing, or in a case of kidney mobility in which there are distinct local symptoms, operation is indicated.

After using various other methods, the author has settled down to the

following operation, and has found it entirely satisfactory in the twenty cases in which he has employed it:

The incision is slightly oblique in order to enable us to remove the appendix if we wish; the exposure of the kidney is identical with the method of Senn. The kidney is brought out of the wound as advocated by Edebohls. The fatty capsule is cut away and the fibrous capsule is either scraped with a needle and thoroughly rubbed with gauze, or, as in some cases seems preferable, is partially or completely removed by the operation of decapsulation. The kidney is replaced and held in place by gauze in the following manner: The ends of two pieces of iodoform gauze are sewed together with slender plain catgut, and thus a piece is prepared for the upper pole of the kidney. Two more pieces are sewed together in the same manner, and thus a piece is prepared for the lower pole. Therefore, instead of passing one long piece of iodoform gauze beneath a renal pole, and being obliged subsequently to pull a long end around under the kidney, when we wish to remove the gauze, we put a sutured piece of gauze under a renal pole and, as the sutures are composed of catgut, they are quickly absorbed. In a few days, the gauze is easily removed, and the suture line being directly under the kidney, there is only a short end to pull around on each side. After the kidney has been restored to position and the gauze has been inserted, stitches of silk-worm are passed and tied at the upper and lower ends of the wound, in order to close partially the muscular, fascial, and cutaneous gap. Through the centre of the wound sutures are inserted, but are left untied, and they are not to be tied until the gauze is removed. This method obviates the necessity of having to give the patient an anesthetic when the gauze is to be removed, and does not leave a large raw surface to be filled in by granulations.

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The Treatment of Ectopia Vesicae.—Trendelenburg (*Annals of Surgery*, August, 1906).—During the past fifty years many surgeons have occupied themselves with the solution of this problem, and many have been the attempts to devise a method by the aid of which, even in the severe types of the deformity, a restoration of the normal bladder form and function could be secured. In uncomplicated cases of epispadias, Dieffenbach effected a cure by uniting with sutures. Where the cleft extended into the bladder, he regarded operative interference as practically hopeless. Thiersch then introduced a method by which the defect was covered with a neighboring skin flap. The method of Maydl is characterized by an implantation of the ureters into the sigmoid flexure. Continence thus attained may be made to extend over several hours. The great danger associated with this method is the production of pyelonephritis from the entrance, sooner or later, of some of the intestinal contents into the ureters. Various modifications for obviating this difficulty have been suggested, but none have succeeded in entirely overcoming it.

The author endeavors to aid the direct union of the freshened edges in cases of ectopia by producing a separation of the pelvic bones at the sacro-iliac synchondrosis, in order to provide for a closer approximation of the two halves of the pelvis anteriorly at the symphysis, and

consequently of the edges of the defect. He mentions three cases of bladder ectopia which were operated upon several years ago by his method with excellent results. In all three patients the defect which extended from the umbilicus to the glans penis, is completely closed and no fistulous openings are present. The bladder when distended consists of a spherical cavity lined with mucous membrane. The passage of small concretions is occasionally observed by these patients, but tendency to calculus formation is by no means as marked as in certain cases operated on by Thiersch which the author has had occasion to examine.

Retention of the urine is not complete in any of these three cases, but, by means of a contrivance supplied with a spring which compresses the urethra, they are made very comfortable, and, by proper care and attention, they avoid the production of any odor which would serve to direct attention to their condition. One of the patients remains dry throughout the night. He may be awakened once or twice by the desire to urinate, and, even when he gets up, he can voluntarily retain the urine for several minutes. The fourth patient, a boy of five, could, also, when he tried, retain his urine for several hours when standing or walking, but later on this ability was lost. Both of the two cases last mentioned demonstrate that the physiological factors necessary for both retention and voluntary micturition are present, and they are merely prevented from functionating in a normal manner by certain clinical conditions. The reason for the failure may be accounted for by the fact that the two sections of the pelvis which have been separated, and the sacro-iliac synchondrosis, have a tendency to gradually resume their former positions, therefore the neck of the bladder and the prostatic portion of the urethra, which are closely connected with the pubic bones, are pulled upon to such an extent that the muscular ring can no longer be brought into play. Mobilization of the pubic bones with the help of the chisel, or by dissecting widely the attachments of the urethra and the neck of the bladder to the latter, have in no instance of complete ectopia given a permanent result. Such a procedure is apt to lead to the production of a dense scar along the vesical neck, which, in the event of a secondary operation, will be a source of great annoyance. In cases of epispadias associated with incontinence, as well as in cases with only a partial ectopy involving merely the vesical neck, the prognosis is more favorable. In these transitional types between simple epispadias and ectopia vesicæ there is also lacking a proper union at the symphysis pubis, but the separation at this point is not so extensive and consequently there is much less lateral tension on the neck of the bladder and the urethra after operative closure. In certain cases of epispadias where the infundibulum is narrow, the previously existing incontinence may be overcome by direct suture of the urethra after the free edges of the latter have been freshened. Even if the infundibulum is sufficiently large to admit the tip of the little finger and a slight prolapse of the posterior wall of the bladder follows from coughing or straining, there is still some hope that continence may be restored.

The author feels that it would be wise to go back to the old idea advanced by Demme and Passavant and to make an attempt to bring about the desired changes in the bony structures of the pelvis by orthopedic

measures. Rapidly growing osseous tissues of the young do not offer much resistance to even slight degrees of pressure, provided it is constantly applied. The bone yields and gradually undergoes marked alterations in form and contour, as illustrated by cases of congenital macroglossia and by the feet of the Chinese women. There seems to be no good reason why, with the exercise of time and patience, the infantile pelvis may not be similarly molded in cases of vesical ectopia. The mother may be directed to apply a snug and sufficiently wide rubber band around the child's pelvis and hips for some definite period during the day and night. If this be supplemented by operative division of the pelvic bones at the synchondrosis, it may be possible to bring together permanently in this manner the two halves of the pelvis, and convert the transversely placed oval defect of the abdominal wall into a narrow slit. This would produce practically the same conditions which are present in epispadias associated with a partial ectopia of the bladder, and we should then expect to have the same satisfactory operative result as in the less severe types of the deformity.

## GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

HYSTERIC APHASIA, AGRAPHIA AND ALEXIA AT THE APPEARANCE OF FIRST MENSTRUATION.—Vitek (*Abstr. in Zentralbl. f. Innere Mediz.*, No. 24, 1906).—The very irritable girl, fourteen years old, became so frightened at the sight of the first menstrual blood, that she fainted. After consciousness had returned she was unable to speak, although she could see and recognize things. After a few days, when the menstrual discharge disappeared, speech gradually returned. At that time patient observes that she can neither read aloud nor write. The author bases his diagnosis of hysteria upon the following symptoms: Sudden appearance of the pathologic condition subsequent to a psychic trauma, presence of such hysteric stigmata as globus and tenderness to pressure of ovarian region, no lesion of the heart, absence of any paresis in either cheeks or extremities and the prompt relief afforded by suggestive therapy. Vitek explains the condition as a spasm of cerebral vessels, probably of those on the brain surface. An exaggerated vasomotor irritability, especially in neuropathic individuals, is a rather common occurrence at the time of puberty.

THE RELATION OF THE FEMALE SEXUAL ORGANS TO HYSTERIA, HEART FAILURE AND CHLOROSIS.—Diepgen and Schroeder (*Zeitschr. f. Klin. Mediz.*, Bd. 59).—The following are a few of the conclusions drawn by the writers: Women who later manifested the symptoms of hysteria, as a rule, first menstruated rather late in life. In such patients the flow very often is scanty and the interval between menstruation more than four weeks. All these phenomena are best explained as due to a deficient

general development. Hysteria, while very rarely altering either the amount or the interval between the appearance of the flow, forms, however, a frequent cause of dysmenorrhea.

A heart-failure acquired early in life tends to retard the appearance of the first menstruation. In patients suffering from a cardiac lesion the menstrual flow often is scanty. The disease shows very little influence upon the menstrual type. In case of disturbance of compensation the effect upon menstruation is an indirect one, brought about by the impairment of the patient's general condition.

Menstruation, as a rule, appears late in girls who later develop a chlorosis. Often the flow is scanty, returns in intervals longer than the normal, and frequently is accompanied by pain. Again these symptoms can be explained as due to a general underdevelopment. If changes of the menstrual type occur subsequent to the appearance of a chlorosis, they seem in no way to correspond to the varying amount of hemoglobin present in the blood, and, therefore, the conclusion must be drawn that the chlorosis is not a direct cause of menstrual anomalies.

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The Influence of Hydrogen Peroxide upon Uterine Hemorrhages.—Spirt (*Abstr. in Muenchn. Med. Wochenschr.*, No. 31, 1906. Original in Roumanian Literature).—The writer records favorable results with the injection of hydrogen peroxide into the uterus in two cases of hemorrhage. He claims to have checked by means of but two injections, hemorrhages which could not be controlled in any other way. This therapy was first recommended in 1895 by Petit, who used an applicator, while Spirt employs the Braun syringe. [The abstract does not state the nature of the uterine hemorrhage.—Ed.]

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Is Appendicitis More Common in Men or in Women?—Karrenstein (*Deutsche Med. Woch.*, No. 32, 1906).—In view of the fact that it seems to be the general belief that women are more susceptible to appendicitis than men, it is interesting to note that this writer, from the careful study of large statistics concludes that both sexes are almost evenly represented among the sufferers of this disease.

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Secondary Carcinoma of the Ovaries.—Bland Sutton (*Brit. Med. Jl.*, May 26, 1906).—From his personal observation the writer is inclined to believe that the majority of all bilateral solid ovarian tumors are of a carcinomatous nature, and, as a rule, metastatic formations. In post-mortem examination of women who died of gastric cancer, in at least ten per cent of the cases metastases are found in the ovaries. The primary carcinoma penetrates to the peritoneal surface of the organ, either stomach or intestine, detached particles are carried into the pelvic cavity and there infect the ovaries, giving rise to the formation of large sized ovarian tumors.

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Lumbar Puncture in Eclampsia.—Pollak (*Zentralbl. f. Gynaek.*, No. 31, 1906).—In No. 23 of the same journal Thies had given a detailed account of the present experience with lumbar puncture in cases of eclampsia. He came to the conclusion that only in a very few instances

an apparently favorable effect can be noticed. It seems that the puncture shortens the comatose stage but on the other hand it does not seem to have any influence upon the number of the subsequent convulsions. These empiric conclusions, in Pollak's opinion, harmonize entirely with the results of histologic examinations of the central nervous system of patients who died during eclamptic convulsions. Pollak found marked changes in the spinal cord, and also in the nuclei of the motoric cranial nerves, especially of those controling respiration. That respiration often becomes shallow after lumbar puncture, cannot be explained as the immediate effect of the withdrawal of the spinal fluid, but is entirely due to the extensive degenerative changes in the nuclei of the vagus nerves.

## PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

ENTERITIS AND APPENDICITIS IN THE CHILD.—Guinon (*Rev. Mens. des Mal. de l'Enf.*, August, 1906).—Apropos of the recent discussion at the French Academy on the relation of appendicitis and entero-colitis, Guinon says that conditions differ in this regard in childhood and adult life. He would set up as a proposition, the dictum that in the child there is no appendicitis without enteritis. When the colitis localizes itself at the cecum, there is nearly always appendicitis. It would appear that various forms of enteritis may stand in casual relation to appendicitis in childhood. He believes that appendicitis is really a chronic disease, whose acute exacerbations may be called forth by one of several causes. Among these predisposing causes, infections of the rhino-pharynx, and adenoids must be considered as important. It often happens that the preliminary enteritis is caused by the adenoids. In other cases the adenoids may be the "intermediary" between influenza and appendicitis.

Attention to the condition of the rhino-pharynx, and correction of all forms of enteritis are thus to be considered as prophylactic measures in the prevention, or—in the sense of its chronicity—of cure of appendicitis.

DIPHTHERIA PARALYSIS CURED BY LATE INJECTIONS OF ANTITOXIN.—Comby (*Arch de Med Enf.*, August, 1906).—In 1902 Comby called attention to the value of antitoxin in the treatment of diphtheritic paralysis, reporting several cases. He now reports three more. A man of fifty years, whose diphtheria was not treated by antitoxin, had severe paralysis of the lower extremities later. Rapid recovery under large doses of antitoxin. A girl of four had late paralysis after diphtheria, rapidly cured by large and repeated doses of antitoxin. The third case was similar to the second. Comby believes that for all diphtheritic paralyses, antitoxin should be freely used, and this applies whether the primary diphtheria was treated by the injection of antitoxin or not. It is important

that the dosage used be large enough and sufficiently frequently administered. Accidents following the late administration of antitoxin have not been observed.

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Serum Diagnosis of Tuberculosis.—Thomesco and Gracowski (*Arch. de Med. des Enf.*, August, 1906.)—Have been working with a modification of the agglutination test for tuberculosis as proposed several years ago by Arloing and Courmont. Essentially this test rests upon the fact that homogeneous cultures of the tubercle bacillus, specially grown, will agglutinate distinctly in the presence of serum from tubercular cases, though the reaction is not as distinct as is the case with the typhoid bacillus. While the details of the study cannot be reproduced here, it may be of interest to give a summary of the results obtained.

In 77 cases of tuberculosis of various forms, clinically diagnosticated, the reaction was positive in 59 cases (76.2 per cent). It is to be noted that the majority of the other 18 cases showed very advanced lesions, some of them being moribund on admission.

Of 59 cases diagnosticated as non-tubercular, or where the diagnosis of tuberculosis was doubtful, 44 gave a negative reaction (74.6 per cent.). Control tests (by means of tuberculin, cytodiagnosis, etc.) were made in these negative cases and agreed with the results of the serum test.

Fifteen of this series gave a positive reaction, and in eight of these cases the subsequent course showed the correctness of the test.

The authors believe that a positive reaction is almost pathognomonic for tuberculosis, while a negative reaction does not necessarily exclude its presence. They believe that the method has great diagnostic value.

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The Causation of Infantile Convulsions.—Scott (*The Practitioner*, August, 1906) sums up the causes as follows: As predisposing causes, we have age, heredity and rickets, and as more direct causes, first, cerebral irritation, either from disease, traumatism or shock; secondly, reflex disturbances, which may be numerous and varied. As examples may be cited dentition, gastro-intestinal disorder, worms, peripheral nerve irritation, as in earache or glottic spasm. Thirdly, less common forms, such as at the onset of acute specific fevers, in congenital heart disease and in cases of poisoning. Lastly, the fits may be true epileptic, or as a result of fright or strong emotion—Money's cortical epilepsy.

In the majority of these cases, no one of these causes acts singly; in by far the greater proportion two or more are at work, there being often some underlying condition rendering the subject liable to the precipitation of an attack of convulsions on comparatively slight provocation.

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The Size of the Spleen in Rickets.—Cowan and McClure (*Britt. Jour. Chil. Dis.*, August, 1906) have made a study of the exact relationship of enlargement of the spleen in rachitic children to the disease itself. They find that in the literature the statements are indefinite and variable. The following table shows the results of their examination of 417 consecutive cases of rickets as seen in dispensary practice. Every stage of the disease was represented, the large majority of the cases

being active. "Spleen palpable" indicates that the organ could be felt on abdominal examination. The authors believe that Trousseau's contention is correct, when he says that in cases of chest deformity, a spleen may be felt beyond the ribs without being enlarged.

| | Under 1 yr. of age | 1 yr | 2 yrs | 3 yrs | 4 yrs | 5 yrs | 6 yrs | 7 yrs | 8 yrs | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cases examined.... | 20 | 156 | 126 | 69 | 26 | 11 | 6 | 1 | 2 | =417 |
| Spleen palpable..... | 1 | 8 | 4 | 2 | 1 | 0 | 0 | 0 | 1 | = 17 (4.07%) |

While the spleen was palpable in 17 cases, the authors state that in only eight of these cases were they certain that the organ was really enlarged. From their study [whose results are certainly rather at variance with the ordinarily accepted views.—Ed.] it seems improbable to the authors that splenic enlargement is merely an incident of rickets when the viscus is only palpable in less than 5 per cent of the cases. In their opinion, notable enlargement of the spleen in rachitic children is the result of causes other than rickets itself, the most common of which are splenic anemia and congenital syphilis.

## NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

STATISTICAL STUDY OF THE ETIOLOGY OF EPILEPSY.—Siebold (*Psychiatr. Neurologische Wochenschr.*, Nos. 16-18, 1906).—This is a continuation of the statistical study of Lange made at the same institution five years previous. The present study concerns the material from 1899 to 1906. In this time 913 new cases of epilepsy were admitted to the asylum. A study of this large material deserves attention and the results ought to be of some value. The following are the principal facts noted in the conclusion: (1) Of the 913 cases, 59.2 per cent. were men, 40.8 per cent. were women. (2) 83 per cent. of all the cases were taken sick before the twentieth year. In the first decennium the males predominated, in the second the females. (3) In a fourth of the whole material no definite etiological factor was found. Of the remainder, 55 per cent. showed heredity as the etiological factor most in evidence. This was more pronounced in the males than in the females. Individuals with heredity marked took the disease earlier than those who had none. The heredity coming through the mother seems more dangerous than through the father. (4) Neuro-psychopathical heredity was found in 34.8 per cent. Consanguinity of the parents in 3 per cent. of the cases. (5) Alcoholic excess of the parents was found in 18.8 per cent. of the cases, in the male descendants twice as often as in the female descendants. Alcoholic excess in the parents is many times more dangerous as far as the causation of epilepsy is concerned, than the individual indulgence acquired during early life. (6) Acquired causes were found in 30 per cent. of the cases and of this infectious diseases play the most important role. Bodily injuries were found in 10 per cent. of the cases. In 27 per cent. of the cases the cause of the first attack was discovered.

Sensory Disturbances in Incipient Progressive Paralysis.—Piltz (*Neurologisches Centralblatt,* August, 1906).—An examination of the sensory system of early progressive paralytics to ascertain whether the changes found might have some diagnostic value. The results of the examination of seven cases with this end in view is given as follows: (1) A lessening of the sensibility of the skin to pain, hypalgesia, or analgesia, over the whole surface of the body, with the exception of a small zone about the neck in the form of a collar, a small girdle or corset zone on the trunk and the posterior surface of the lower extremity. In these areas the sensibility to pain is normal or even increased. (2) An increase in the tactile sensibility, hyperesthesia, on the trunk either in the lumbar or dorsal region of the back, in the form of a corset, or in the form of a girdle varying in width.

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A Case of Tabes During the Course of Which a Chancre Probably Syphilitic Appeared.—Verger (*Cardenel Revue Neurologique,* No. 13, 1906).—This is an account of an interesting case in which during the progress of a tabes there appeared an apparently well developed syphilitic chancre. The tabes itself showed a strange tendency to change its type. This change was likewise shown in the post-mortem findings of the spinal cord. In addition there was found a neuritic process in the nerves of the knee-joint corresponding to an arthropathy in this region. At the autopsy the posterior columns were found to be the seat of only a moderate degree of sclerosis, which did not correspond at all to the length or severity of the symptoms, or the duration of the disease.

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Blood Examination in Nervous Cases.—Bing (*Berlin Klin. Woch.,* No. 36, 1906).—This article is based upon a careful examination of the blood of patients in Oppenheim's clinic. The following points were noted in the examination: (1) The height of the blood pressure. (2) Variability. (3) Variation under different conditions. (4) The trigeminal reflex, that is the variation of blood pressure by stimulation of the trigeminus at the nasal branching. The blood pressure variations in normal individuals formed the necessary first step to this investigation. Twenty-seven cases formed the material for this study. The following conclusions are noted: In cases of hysteria, neurasthenia and psychasthenia without vascular or cardiac symptoms, notable variation from the normal was not observed. In two cases of Basedow's disease there was found a variable blood pressure. In a case of hysterical convulsion the blood pressure, within five minutes, was 20 mm. In all cases examined of patients who had suffered an apoplectic stroke the blood pressure was found to be higher than normal.

# OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

RETINAL HEMORRHAGES IN COMPRESSION OF THE THORAX.—Beal (*These de Paris,* 1906).—In compression of the thorax, retinal hemorrhages are rare. They may be macular or peripheric, circumscribed, round, few in number, or single. The prognosis as to vision varies, of course, with the site, a macular lesion being followed by central scotoma. In sudden violent compression of the thorax blood stasis may be the sole cause of the hemorrhage. In cases where the compression is prolonged, physical effort must be included as a factor. Retinal hemorrhages are rarer than facial ecchymoses, because the intraocular counter-pressure upon the retina is greater than the intravascular pressure.

THE FACTORS WHICH DETERMINE THE PRODUCTION OF INTRAOCULAR FLUID.—Henderson and Starling (*Proceedings of the Royal Society,* B. Vol. 77).—Investigating the effect of the rate of production of the fluid, of alteration in the blood pressure in the vessels of the eyeball, the authors found that in every case a rise of intraocular pressure caused an increase in the amount of fluid secreted.

Experiments showed conclusively that the rate of absorption of intraocular fluid is determined (in the absence of any disturbing factors) solely by the height of intraocular pressure.

Their observations tend to support in every particular Leber's view that the intraocular fluid is produced by the ciliary processes solely by filtration, and that the amount is determined by the difference in pressure between the blood in the capillaries and the fluid in the eyeball. In twenty experiments the authors found that the smallest difference between the arterial blood pressure and intraocular pressure was 48 mm. of mercury, and the average difference 85.8 mm. This probably justifies the assumption that there is a difference of at least 30 mm. of mercury between the capillary blood pressure and the intraocular pressure, a difference which would satisfy the necessary conditions for filtration.

The effect of the size of the pupil on the absorption of intraocular fluid was investigated in animals whose one eye was treated with atropine and the other with eserine. Under normal intraocular pressure absorption in the two eyes was practically the same, but on raising the intraocular pressure the rate of filtration of the eye under eserine greatly exceeded that in the atropised eye.

SUMMARY.

1. The intraocular pressure represents the pressure at which the rate of formation of intraocular fluid is exactly balanced by its rate of escape through the filtration angle of the eye.

2. The production of intraocular fluid is strictly proportional to the difference of pressure between the blood in the capillaries of the eyeball and the intraocular fluid.

3. No satisfactory method of measuring the intracapillary pressure in the eyeball has yet been devised. Judging, however, from a comparison of the arterial pressures and the intraocular pressures in a large number of animals under different conditions, there is probably always a difference between the intracapillary pressure and intraocular pressure, which is sufficient to account for the production of the intraocular fluid, without assuming any active intervention on the part of the cells of the capillary walls, or of the ciliary processes.

4. An increased proteid content of the intraocular fluid slows its rate of absorption in consequence of the mechanical hindrance of the proteid to infiltration.

5. Filtration, i. e., the absorption of intraocular fluids, at high intraocular pressures is favored by constriction of the pupil and hindered by dilatation of the pupil. The difference, however, is barely perceptible with normal or low intraocular pressures.

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Cataract Expression in the Capsule (Smith's Operation): Results in One Hundred and Seventy-five Operations.—Maynard (*Ophthalmic Review*, August, 1906).—The initial enthusiasm which greeted Major Smith's operation of extraction in the capsule is giving way to less roseate views as the special dangers of the operation become better known. Maynard, of Calcutta, concludes a full discussion of his personal experience with the operation as follows: The advantages of the operation are (1) only one instrument besides the knife—the iris forceps—is introduced into the interior of the eyeball, and so there is less chance of infection, especially as the piece of iris touched by the forceps is removed; (2) complete removal of capsule and cortex and so better vision, with removal of one of the main causes of indifferent sight after extraction and of one of the minor causes of iritis. Impaction of capsule in the wound, with all of its dangers is avoided also.

The disadvantages of the operation are (1) frequent loss of vitreous with its dangers of detached retina, hemorrhage, increased chance of infection, etc.: (2) prolonged lowering of tension and haziness of the cornea with poor vision; this may occur without prolapse of vitreous; (3) delayed union which may occur even with a conjunctival flap and with a peripheral incision, due to the pressure applied; prolonged redness, lachrymation and chemosis with drawing up of the pupil, are apt to be found in such cases; (4) frequent rupture of the capsule with its bad effect on vision.

As the result of his experience Maynard finds it impossible to recommend the performance of the operation and has returned to the practice of removing lenses in their capsules only when overripe.

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Earning Capacity After Injuries to the Eyeball.—Feilchenfeld (*Zeit. f. Augenh.*, February, 1906).—Among several thousand workers in various workshops, Feilchenfeld found 81 with one eye defective either through accident, or refractive error. In only eight cases was the earning capacity of the man reduced below what it had been or would have been had the subject enjoyed full binocular vision. The economic effect of an injury to one eye depends on the circumstances of each

particular case, but by far the most important factor in assessing compensation must always be that when one eye is incapacitated from any cause it will make all the difference to a man whether or not he has a useful *second* one.

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## LARYNGOLOGY AND OTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

WHAT CAN WE ACCOMPLISH BY THE INTRA-NASAL TREATMENT OF CHRONIC SUPPURATIONS OF THE FRONTAL SINUS, ETHMOID CELLS AND SPHENOIDAL CAVITIES?—Kramm (*Zeitschrift fuer Ohrneheilkunde,* August, 1906) believes that we have in the external operation of Killian all that can be desired of a radical procedure, but owing to the fact that there is sometimes considerable deformity and that the operation is by no means to be regarded as a simple one, it should be resorted to only after the intra-nasal methods have failed.

The author has operated on about two hundred cadavers by intra-nasal route and was able to gain free access to these ca *fur* He also operated on a number of patients with satisfactory results ıifi- The methods are described in detail by which the accessory ca ues can be radically dealt with intra-nasally. These methods are, with sl ge modification, those followed by Hayeck, Killian and others. a-

The author concludes that we can by the intra-nasal route give gc drainage to and partially curette the frontal sinus, obliterate most the anterior, and practically all of the middle and posterior ethmoida cells and establish a large and permanent opening into the sphenoidal cavity. Should the intra-nasal route fail, the following advantages will have been gained:

1. The mistake of opening a normal frontal sinus will be practically impossible because the absence or presence of a diseased sinus will be fully established.
2. The size of the frontal sinus will have been determined and the special external operation can be decided upon.
3. The question of an external operation can now only be considered.
4. The Killian operation is less dangerous and can be performed in much less time. Often the removal of the frontal process of the superior maxilla will suffice. As a result there will be less scar formation and a minimum of deformity.

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A CURE OF SUPPURATION OF THE MIDDLE EAR WITHOUT REMOVAL OF THE DRUM OR OSSICLES OR LOSS OF HEARING.—Heath (*Lancet,* August 11, 1906).—The author's method differs from the radical mastoid operation in that the antrum is opened and granulations removed and the upper posterior canal wall removed down to the drum, but the drum and ossicles are left intact. The wound is closed primarily and all the treatment is carried on through the canal. Ten cases are

reported in brief in which this operation was done with success. The hearing was markedly improved in most of them. The author does not suggest that this will take the place of the radical operation, but makes a plea that the function of the ear be given more consideration. Should the method fail a radical operation can still be done.

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Hay Fever and Persistent Bronchial Asthma Relieved by Treatment Directed to the Antrum of Highmore.—Schadle (*Med. Record,* Sept. 8, 1906) reports a case of hay fever successfully treated by washing the antri with a warm boric acid solution until the fluid came away clear and perfectly free from sediment. The sinuses were then freely insufflated with thymol iodide. This form of treatment was continued for five successive days. Complete relief was obtained after the third treatment. The author believes these cases illustrate the intimate relationship existing between a morbid state of the maxillary sinuses and the local and general phenomena symptomatic of hay fever. The antral theory embodying these factors is that the antrum of Highmore provides the secretion which forms the agent that causes the local irritation in the sinuses and nasal passages alike.

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The Clinical Value of the Blood Examination in Otitis Media Purulenta and Its Complications.—Hubby (*Laryngoscope,* August, 1906) believes the condition of the blood to be an accurate and delicate barometer of the entrance of pathogenic bacteria and their products. In general, the greater the effect on the blood, the more radical must be the alleviating procedure.

The blood picture in purulent disease of the ear and adnexa is as follows: The hæmoglobin is markedly reduced in amount in septicemia and pyemia. The hemocytes are decreased in numbers in septicemia and pyemia, but the decrease is not rapid. The main value of the blood examination in suppurative diseases of the ear lies in the leucocyte count, simple and differential. It is necessary to make repeated examinations to determine the progress of the process, but the clinical symptoms must be given greater weight than the mere leucocyte determination. Blood tests will prevent the faulty diagnosis of malaria or typhoid fever in suppurative diseases of the ear. In doubtful cases we cannot afford to neglect any possible source of light, and the examination of the blood will sometimes clear the situation.

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Treatment of Sarcoma of the Nasopharynx by Injections of Adrenalin.—Rhodes (*Jour. A. M. A.,* Aug. 11, 1906).—The prognosis of sarcoma of the nasopharynx is so uniformly bad that any treatment that offers hope for either the amelioration of the symptoms or a possibility of cure, deserves attention. The treatment employed by the author was first suggested by Mahu in 1903, and recently used in a case of carcinoma of the rhinopharynx by Berdier and Falabert with very marked benefit. It consists in injecting five to ten minims of the following into the substance of the tumor: Adrenalin chloride, 0.12 gramme; boric acid, 0.6 gramme; chloretone, 0.025 gramme; distilled water, 15 gramme. These injections were made each day, selecting a

different portion of the tumor each time. The encouraging results of the treatment in the author's case were the immediate reduction in the size of the sarcomatous mass and the temporary alleviation of pain, though the patient died from exhaustion due to the inroads of the disease. In conclusion the writer states that the method merits trial, especially in cases of carcinomata and sarcomata of the throat and nose, in which an unfavorable prognosis, almost without exception, must be made and the earlier it can be resorted to the better. He believes it may be safely asserted that this may replace morphin as an analgesic in these cases and that it has a palliative effect, while we have no proof as yet of its being curative in its action. In operable cases, however, in which delay would be dangerous, a resort to surgery, as heretofore, should be the rule, until the matter has had further trial.

## DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

SPIROCHÆTE PALLIDA IN CONGENITAL SYPHILIS.—Entz (*Archiv. fur Dermatol. und Syphilis,* Vol. Band LXXXI heft 1).—This is a magnificently illustrated article showing the spirochæte pallida in all the tissues in congenital syphilis. The heart muscle shows the spirochæte in large numbers. The author followed the method of nitrate of silver impregnation of Lævaditi and reduced the silver solution with pyrogallic acid.

PITYRIASIS RUBRA PILARIS.—Brault (*Gazette des Hopitaux,* Aug. 23, 1906).—In the treatment of this disease the author recommends Fowler's solution and non-exciting diet: No alcohol, and patient should be put upon a strict regime. Locally he recommends alkaline baths with soap, ichthyol, oil of cade and pyrogallic acid.

CUTANEOUS TUBERCULOSIS.—Gougerot (*Gazette des Hopitaux,* Aug. 18, 1906).—Cutaneous tuberculosis may be divided into two groups, the typical and atypical, and the transitional stages between them. The first group is admitted by all on account of its characteristic histological structure. The second group is characterized by the absence of bacilli, inflammation, nonspecific, the negative results from the inoculation of animals and inconstant to the injections of tuberculin. In the first group may be included tuberculous ulcers of the skin and mucous membrane; 2nd, tuberculous gummas of the skin and lymphatics, or the so-called scrofulo derma; 3d, lupus vulgaris of Willan and its varieties; 4th, verrucous tuberculosis of the skin or the anatomical tubercle; 5th, tuberculosis vegetante. Under the second group, or atypical cutaneous tuberculosis, may be included, 1st, the lichenoid type (lichen scrofulosorum); 2d, the nodular type (erythema indure of Bazin). Under the small nodules the author classes the *multiple benign sarcoid of Boeck.* Then comes the papulo-necrotic type: a, scrofulous psoriasis of Hutchinson;

b, disseminated lupus erythematosis of Boeck; c, symmetrical folliculitis of Brocq; d, acinitis; e, folliclis; f, acne varioliformis; g, hydradenitis of Pollitzer; h, ulcerating folliculitis of Lukasieluicz; i, hydradenitis of Dubreuille; j, acne telangiectoidies of Kopisi; k, acne cachecticorum; l, disseminated furunculosis.

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Poison Ivy.—Balch (*Therapeutiz Gazette,* Aug. 15, 1906.)—In the treatment of poison ivy it should be borne in mind that the irritating agent is a fixed oil soluble in alcohol and precipitated by lead subacetate. The oil is similar to cardol but is probably not identical. The use of lead salts in dermatitis resulting from action of the oil is rational but the precipitated lead compound must be removed from the skin as it is gradually decomposed. The oil is set free and its action continues. The use of soap and water and a good hand-brush is the simplest method of getting rid of the oil. The action is entirely mechanical and is perfectly efficient. Alcohol dissolves and removes the oil but successive portions must be allowed to flow over the affected part as, after contact, the alcohol may contain sufficient oil to spread the irritation. Ordinary alcohol must be used and not 50 per cent. alcohol, as the latter does not dissolve the oil. The action is purely a solvent one and not one of neutralization. In every case the above methods of treatment are at once effective. Further irritation is stopped and healing of the lesion begins. In some cases when actual sloughing has taken place, a week or two may be necessary for complete healing, but ordinarily two or three days' time is sufficient. The use of ointments, or fatty substances is wrong, both theoretically and clinically, as such substances only serve to spread the oil. It should be remembered that the clothing may have been in contact with the plants and that oil may be transmitted from it to the skin and the irritation continued in this way. The writer has been poisoned by handling shoes worn while collecting the plants a year previously. Pollen from the flowers contains sufficient oil to give rise to a dermatitis in unusually susceptible persons.

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Overtreatment of Syphilis.—Fox (*Therapeutic Gazette,* Aug. 15, 1906).—The author remarks that one of the commonest therapeutic errors of the day is the overtreatment of syphilis. In many cases of ordinary syphilis the treatment, so far as the patient is concerned, is worse than the disease. While mercury and iodide of potash will often heal ulceration with surprising rapidity, these remedies will have no effect upon the scar left. Therefore, the results of syphilis are often not amenable to treatment. The dose of mercury has gradually lessened in the last thirty years and the general condition of the patient is of the greatest value in the treatment of this condition. Often the health and habits of the individual are such as to interfere markedly with the action of the specifics.

# MEDICAL LAW AND MEDICAL JURISPRUDENCE.

IN CHARGE OF

IRVIN V. BARTH, LL. B.

LIABILITY FOR SERVICES RENDERED TO ANOTHER.—Hays vs. Wabash Ry. Co., (*St. Louis Court of Appeals,* 1906) 95 S. W. 299.—Suit to recover for the value of services rendered by plaintiff as a physician and surgeon in the treatment of one S., who was injured while a passenger on one of defendant's trains. Plaintiff was a practicing physician at Hannibal, Mo., and at the time his services were rendered was in the employ of defendant as local surgeon. When the passenger was injured, on the 17th of October, 1903, the conductor of the train wired plaintiff to be at the station in Hannibal and take charge of the patient. Accordingly plaintiff met the train and conducted the passenger to the railroad hospital, where plaintiff performed an operation, and thereafter continued to give treatment until the 1st day of January following, when he was discharged from his employment by the defendant company. It was a rule of the company that when local surgeons were in the first instance summoned they should immediately notify the chief officers of the company. This the plaintiff failed to do, though he had in his possession a blank furnished him by the company for that purpose.

Plaintiff contended that he was entitled to a recovery for the reasonable value of all the services rendered, while the defendant urged that the services were not rendered at its instance and request, or under any contract with it. The Court allowed a recovery, but only for so much as would constitute the reasonable value of the services in treating the passenger for a reasonable time until defendant's claim agent could have been notified and his answer returned.

The Court said: "In meeting the train at the Hannibal depot, in response to the conductor's telegram, taking charge of S. and removing him to the hospital, and there treating him for such reasonable time as the defendant's claim agent could have been notified of the case and his answer returned, the plaintiff acted strictly within the terms of Section 8 of the book of rules, and, as he did not agree to render gratuitous services for the defendant, is clearly entitled to recover the reasonable value of his services rendered during such time."

NOTE: The principal case suggests the broad and much litigated subject of contracts with physicians for medical services made by other persons than the patient himself. It is the generally established doctrine of the law of implied contracts that where a person requests the performance of a service of any kind, the law raises an implied promise on the part of the person so requesting to pay the reasonable value of the services. In a few jurisdictions this principle is applied without exception to the services of a physician or surgeon, the courts there holding that one who requests a physician to attend another, without disclosing that he is acting only as an agent, becomes liable for the services rendered in accordance with that request. But in the majority of jurisdictions the courts refuse to apply here the general doctrine of

implied contracts, and hold that a person so requesting services of a physician to be rendered another does not by reason only of this request make himself legally responsible therefor, unless, indeed, his relation to the patient was such as to raise a legal obligation on his part to pay for the services. And the relation of employer and employee does not *per se* constitute such a relation as would raise this legal obligation. The exception is founded on reasons of humanity—that one might be prompted to refrain from summoning medical aid, if by so doing he would hold himself responsible for the value of the services rendered.

Missouri is in line with the majority of the jurisdictions. The case of *Meisenbach vs. The Southern Cooperage Co.,* (1891) 45 Mo. App. 232, has become one of the great leading cases upon this subject. There the superintendent of a Cooperage Company sent a messenger to the plaintiff, Dr. Albert H. Meisenbach, summoning him to the factory of the company to attend an injured employee. The Court refused to raise an implied contract on the part of the defendant to pay for the services and in the course of its opinion, said: "The general rule, no doubt, is that where a person requests the performance of a service and the request is complied with and the service performed, the law raises an implied promise to pay the reasonable value of the services. But this implication does not obtain where one person requests a physician to perform services for a patient, unless the relation of the person making the request to the patient is such as to raise a legal obligation on his part to call in the physician and pay for the services. Where a husband calls in a physician to attend upon his wife, or where a father calls in a physician to attend upon his minor child, the law implies a promise on his part to pay the reasonable value of the services, because there is a legal obligation on his part, in either case, to furnish necessaries for the patient's benefit. But no such implication arises where one calls in a physician to attend upon a stranger, or upon one to whom he is under no legal obligation to furnish necessaries * * * The reason and policy of this rule are obvious, especially in cases like the present. Where a person is dangerously wounded, and perhaps unable to speak for himself, or suffering so much that he does not know how to do it, any person will run to the nearest surgeon in the performance of an ordinary office of humanity. If it were the law that the person or going for the surgeon thereby undertakes to become personally responsible for the surgeon's bill, and especially for the surgeon's bill through the long subsequent course of treatment, many would hesitate to perform this office, and in the meantime, the sufferer might die for the want of necessary immediate attention."

Six years later, the Kansas City Court of Appeals applied the doctrine of the Meisenbach case to the relation of father and adult child. *Rankin vs. Beale,* (1897) 68 Mo. App. 325. There the father sent for a physician to attend his son, of full age, sick at the father's house. The Court held that there was no legal liability resting upon the father to pay for those services. The Court said: "It has been repeatedly held that a mere request from a father to a physician to attend a child of full age and though sick at the father's house, raises no implied promise upon his part to pay for such medical services."

But the Meisenbach case does not by any means present a hard and fast rule of law. The application of the rule in any particular case is limited to the reason for its existence. Whenever it may be fairly inferred that the person requesting medical aid intended to pay therefor and the physician so understood it, a liability will attach to such person when the services so requested may have been rendered. This was the theory of the case of *McCarthy vs. Railroad*, 15 Mo. App. 385, decided in 1884, cited and differentiated by the Court in the Meisenbach case. In that case, too, a physician was summoned to defendant's factory to treat an injured employee, but the Company was held responsible there because of the fact that the agent who summoned plaintiff was clearly authorized to summon physicians in case of an emergency and that the agent in turn specifically authorized the plaintiff "to go on and treat the patient."

The right of the plaintiff, Hays, to recover from the defendant railroad Company in the principal case seems even clearer than the right of plaintiff in the McCarthy case. Hays was a local surgeon in the employ of the defendant and by the rule of the company the conductors were authorized in cases of emergency to order the services of the local surgeons retained by the company. The inference is clear that it was the intention of both parties that the services rendered should be paid for by the company. The Court in attaching the liability to the defendant was acting within the reason of the law.

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Revocation of License by State Board Constitutional.—Kennedy vs. State Board of Registration in Medicine (*Supreme Court of Michigan*, 1906) 108 N. W. 730.—Complainant was a licensed physician and brought suit against the State Board of Michigan to enjoin that body from revoking his certificate. He had been cited to appear before the Board to answer charges on account of an advertisement inserted at his instance relative "to venereal diseases and containing matter of an obscene and offensive nature derogatory to good morals." The Statute specifically conferred upon the Board the power to revoke under those conditons. Complainant contended that a revocation of his certificate of registration is an exercise of judicial power. The Court held that the constitutionality of such provisions has been clearly established by the best considered cases as a proper and legitimate exercise of the police power of the State.

Note: The case is in complete accord with the recent Missouri case of *State ex rel McAnally vs. Goodier*, which was the subject of our discussion in our editorial appearing in the April issue, Vol. 13, Number 4, at pages 386-9 of this Journal.

# SOCIETY PROCEEDINGS.

## ST. LOUIS SURGICAL SOCIETY.

Meeting of May 25, 1906.

### IMPORTANCE OF A STUDY OF ANATOMICAL APPEARANCES IN THE LIVING.

Dr. Maurice H. Richardson read a paper with the above title, for which see page 769.

DISCUSSION.

Dr. Tuholske said that any aid in the making of a diagnosis should be striven after. The education of the senses is of enormous value, but notwithstanding all the aids at our command we make mistakes. In making examinations, say about the pylorus, we may find a thickening which will cause us to think we have to deal with a malignant growth. Some years ago he had such a case and made preparations to operate. The pylorus was found hard and firm; he removed a section which was examined at once by the microscopist. The examination confirmed the macroscopical appearance of non-malignancy. In breast troubles he met with comparatively little difficulty in reaching a correct diagnosis although in cases where there was any doubt he always confirmed the diagnosis by a microscopical examination. There can be no question but that great value attaches to a careful examination of the lines of the abdomen in every case in which it is accessible. The speaker felt that he had learned something from this paper that he would use to his own advantage and also to the advantage of his pupils.

Dr. Tupper said he had noticed the odor, referred to by the essayist as an aid in diagnosis. This frequently characterizes abscess of the appendiceal region, but he had not discerned any special difference in that odor from the odor accompanying any suppuration about the intestinal tract. This is specially marked in abscesses about the ischio-rectal space. In operations about the kidney pedicle he had difficulty in seeing very much and depended more upon the sense of touch than upon sight in tying off the vessels and ureter.

Dr. R. J. Terry said it would be impossible at present to study the exact consistency of organs and the colors which obtain in life from the preserved material in the dissecting rooms, and the acquisition of this knowledge has been further removed by the methods adopted for the study of topographical anatomy. He referred to the use of formalin which preserves the conformation and the relation of organs as they exist in the living state, but alters the consistence and color. In Italy the material is dissected without embalming and students get all the advantage of seeing the organs in a fresh state and can note the color of nerves, muscles, vessels, etc. The study of fresh material obtained from the slaughter house is of much use in connection with the ordinary work of the dissecting room and is most necessary at the present time since the attention of students is turned nearly exclusively to the consideration of form and relations.

Dr. Lutz said he would be glad to hear Dr. Richardson's method of procedure for examining the other kidney in operations upon one of these organs.

Dr. F. A. Glasgow thought the suggestion of teaching students the anatomical

appearance of tissues was very important. Plates such as shown by the essayist could be distributed among the students and they could become familiar to a certain extent with the appearances of the tissues. Examinations on the cadaver of course are invaluable, but are not always practicable; when it is done, however, it should be done with the naked hand and not with gloves. Students should be taught to know the feel of tissues after the manner in which the blind are taught to read on raised letters. Nowadays we depend too much upon laboratory diagnosis, he thought. This is a valuable aid, of course, but we must not place too much dependence upon it alone.

Prof. Dr. Duehrssen, of Berlin, said it was a matter of considerable importance that not only the surgeon but the general practitioner should be able to make an exact diagnosis. Speaking from his standpoint as a gynecologist, it was of the greatest importance to make a timely diagnosis of uterine cancer. This diagnosis of cancer of the uterus can and should be made early. The diagnosis of cervical cancer can be made in an early stage in cases where the os is lacerated and the tissues friable. More difficult is the diagnosis of cancer of the uterine body, or of the cervix where the os is closed. He always taught his pupils in every suspicious case to make a curettement of the body of the uterus and to make a seperate curettement of the cervix as it might happen that there be a cancer of the cervix, which may be overlooked by curetting only the body of the uterus, which contains normal mucosa. He emphasized the necessity of making careful misroscopic examinations in cases of fibroids as these often undergo malignant degeneration which otherwise is easily overlooked. He believed there was a greater responsibility upon the physician if he did not advise operation in cases of fibroids than when he did advise operation for, according to his experience, there die more cases of fibroids not operated upon than when operation is performed. He explained a method of examining the pelvic organs, one which he also employed in operating in that region, used by him since 1890, and briefly described anterior vaginal celiotomy, consisting in opening up the anterior culde-sac. The operation is not dangerous and enables one to see all the organs in the pelvis; one operates through this route with as much freedom as through an abdominal incision. Since 1890 he had operated on 1,000 cases in this manner with a mortality of one per cent.

Dr. Richardson said in closing that he had tried upon all suitable occasions to emphasize the importance—when time permitted—of exhausting all methods of diagnosis before advising or performing operations. Not only is a correct diagnosis of the greatest value in itself (for it alone permits selection of operative methods and adequate preparation), but it often contra-indicates operation and saves the patient unnecessary mental and physical suffering. Even if the diagnosis indicates operation, the patient's interests require the most painstaking study, lest something be overlooked which would make operation unneccessary or inadvisable,—lest, for example, an operation be performed upon an enormous irreducible umbilical hernia when the patient has already a hopeless cancer of the breast; or a thyroid tumor be removed when the patient is suffering also from hopeless rectal cancer; or, commonest of all, an operation of convenience rather than of necessity be performed in advanced pulmonary tuberculosis. Every effort should be made to find some good reason for not operating, after every effort has been made to find good reasons for operating.

Dr. Richardson would not by any means belittle laboratory methods; but, on the other hand, he would not admit these methods to be either infallible

or of the first importance. Painstaking laboratory study is of great value, especially when it confirms the conclusions based upon the patient investigations of the physician and surgeon before and during operation.

With reference to the diagnostic value of the sense of smell, Dr. Richardson said that in some diseases the odor is so characteristic that its absence immediately throws doubt upon the diagnosis. He had, for example, seen cases of psoas and lumbar abscess reported as gangrenous appendicitis which he felt sure were not of appendicular origin simply because there was no odor. There cannot be a gangrenous abscess of the appendix without a fecal odor.

In serious operations on the kidney the first and most important thing is to get the patient to bed alive. One must therefore operate in such a manner that hemorrhage will be absolutely controlled. He makes a lateral incision parallel with the external oblique muscles from the last rib downward and forward a sufficient distance. The internal oblique and transversalis muscles are then extensively separated in the McBurney fashion. If the muscles are separated extensively enough, the kidney—except in rare instances—can be brought into full view and within reach of easy manipulation. In the great majority of cases, when the muscles are widely separated, the renal artery and vein can be seen, as well as the pelvis of the kidney, the ureter, and all contiguous viscera. All exploratory and operative methods are then easily carried out. In ligating, Dr. Richardson always ties the vessels separately. In proposed nephrectomies he has used the method mentioned by Dr. Lutz to determine whether the kidney to be left behind is fully able to bear the burden of elimination. If it was a question of removing the kidney, he would first examine the affected kidney through the retroperitoneal incision just described. If the disease indicated nephrectomy, he would then open the peritoneum in front, at the lower angle of the incision, and explore with his hand the other kidney. He would thus be able to judge—from its shape, size, and consistency—whether it was capable of normal urinary elimination.

# BOOK REVIEWS.

ORTHODIAGRAPHISCHE PRAXIS. Von Dr. Paul C. Franze. Otto Nemnich, Leipzig, 1906. Preis Mk. 1.80. Bound Mk. 2.50.

This pamphlet contains the theory, technique and method of taking x-ray pictures with mathematical correctness. It is of especial interest to physicians doing radiographic work, and contains eleven illustrations and two plates.

SURGICAL SUGGESTIONS. Practical Brevities in Diagnosis and Treatment. By Walter M. Brickner and Eli Moschcowitz. Surgical Publishing Co., New York, 1906.

This book contains 58 pages of short surgical observations made here and there in the surgical experience of the two authors. They are arranged in logical order and in a concise form. It is an interesting little hand-book, and contains some valuable suggestions.

CHIRUGIE ORTHOPEDIQUE. Par Berger et Banzet. G. Steinheil, Editeur. Paris, 1904.

This is a general text-book on orthopedic surgery. It is profusely illustrated in a modern way, and is especially valuable for its descriptions of operative technique. Article 3, on plastic surgery and the treatment of cicatrices by skin transplantation, is very interesting to the general surgeon, perhaps more than the orthopedist. The chapter on tendon-grafting and tendon lengthening is well illustrated and very instructive.

BODILY DEFORMITIES. Their Nature, Causes, Variety and Treatment. A Series of Lectures by E. J. Chance. Edited by John Poland. London: Smith, Elder & Co., 1905.

This volume contains a series of lectures on the subject of deformities, following the author's own ideas, as a whole, rather than the path marked out by convention in treating the subject of deformities. The author has held the position of surgeon to the City Orthopedic Hospital, London, for the last eleven years, and has treated in that time upwards of 10,000 cases of deformity. The book is illustrated by original drawings and wood-cuts. A synopsis of each lecture is given. The cases described are in many instances unusual and interesting.

HANDBUCH DER GEBURTSHILFE. Herausgegeben von F. von Winckel, Professor der Geburtshilfe in Muenchen. Verlag von J. F. Bergmann in Wiesbaden. Zweiter Band, zweiter Theil.

Another volume has been added to this comprehensive presentation of the science of obstetrics. This book of 800 pages forms the second half of the second volume of this gigantic work. Its nine chapters are devoted to a consideration of the pathology and therapy of pregnancy. Professor Werth, the recognized authority on the subject, writes in the almost 400 pages of the first chapter in a most exhaustive manner on ectopic pregnancy. Four of the chapters, namely, those dealing with diseases of the membranes and the placenta, with the changes occurring in fetus and ovisac after the death of the fetus, and with the etiology and mechanism of premature expulsion of the fetus, are from the pen of Seitz in Munich. Hofmeier of Wuerzburg considers the disturbances of pregnancy caused by a faulty implantation of the placenta;

Chazan, of Grodno, the frequency, course and treatment of abortion. The volume ends with an interesting chapter by Schaeffer in Heidelberg on injuries, traumatisms and operations during pregnancy.

As the publication of this work proceeds, one cannot help being impressed by the wealth of information which here is so ably presented. We cannot add anything to the praise we have already expressed in reviews of the preceding volumes. It becomes more and more evident that the specialist could hardly afford to be without this work, but also that it must prove of necessity the most important reference book to the practitioner, who will find enlightenment and advice for any and every complication of pregnancy and labor which he may encounter in his practice.

THE PRACTICAL MEDICINE SERIES. Under the general editorial charge of Gustavus P. Head, M. D. Series 1906. Volume IV. Gynecology, edited by E. C. Dudley, Professor of Gynecology, Northwestern University, Chicago. Volume V. Obstetrics, edited by Joseph B. DeLee, Professor of Obstetrics, Northwestern University, Chicago.

These two volumes represent No. IV and V of this well-known series, which in about ten volumes annually presents a complete review of the year's progress in medicine and surgery. As heretofore, the volumes cover the field in a most thorough way. While primarily arranged for the use and benefit of the general practitioner, a perusal of the individual volume, which can be bought for the moderate price of $1.25, is of interest and value to the respective specialists.

SAMMLUNG KLINISCHER VORTRAEGE. Begruended von Richard von Volkmann. Neue Folge herausgegeben von Hildebrand, Mueller und Winckel. Verlag von Breitkopf & Haertel in Leipzig.

We take this opportunity to call the attention of our German-speaking readers to this famous collection of clinical lectures. Each lecture forms a complete and connected presentation of a certain subject of interest. These "Vortraege" can be bought singly at the very low price of 19 cents a number, or can be subscribed for in series. Thirty lectures form a series which cost 15 marks. The three last numbers of the gynecologic series are the lectures of B. S. Schultze in Jena, on torsion of the cervix in the myomatous uterus, of Benno Mueller on the changes of the uterine glands during pregnancy and menstruation, and of O. Schaeffer in Heidelberg, on the mechanical means for the starting of labor pains and the dilatation of the cervix.

LEHRBUCH DER KRANKHEITEN DES HERZENS UND DER BLUTGEFASSE. Von Dr. Ernst Romberg, o. Professor und Direktor der med. Klinik in Tubingen. Verlag von Ferdinand Enke. Stuttgart, 1906.

This volume, in its combination of acute scientific observation with practical empiricism in treatment, is an example of the best sort of German text-book. Beginning with a general discussion of the methods of examination, the author takes up in turn the organic diseases of the heart, pericardium and great vessels and finally the cardiac and vascular neuroses. It is noticeable that while the bulk of the book is devoted to symptomatology and diagnosis, not as much space is given to x-ray examination in this group of diseases as many of its devotees would consider proper. Nevertheless, the fact that the chief stress is laid upon diagnostic methods at the disposal of the general practitioner, will prove a recommendation rather than the reverse. In the matter of treatment, chief strees is laid upon hygienic, dietetic and hydrotherapeutic methods and, properly, much less upon mere medication. As regards the latter, the author discusses in detail only digitalis and strophaunthus, giving passing mention, only, to the other cardiac tonics and hardly alluding to a drug much in use in this country, namely, strychnine. An excellent index closes the volume which

will be found a mine of readily accessible information. It is to be hoped that a translation will soon place it at the disposal of readers unable to consult it in the original.

DIE RUNDSCHAU. Uebersicht uber die Fortschritte und Bewegungen auf dem Gebiete der Wissenschaft, Technik, Literatur und Kunst. Herausgeber Dr. J. H. Bechhold. Verlag: H. Bechhold, Frankfort a. M. X. Jahrgang.

This journal is one of the best of those that attempt to disseminate knowledge of the development of the branches of human endeavor named in the title. It differs greatly from many of such journals in the scientific character which all communications not only appear to have, but really have. The information given and the stimulus prompted by it is always correct and free from fantastication and speculation. The journal is bound to form a source of healthy instruction in wide circles.

THE AUTO-TOXICOSES, THEIR THEORY, PATHOLOGY AND TREATMENT. By Heinrich Stern, Ph. M., M. D. 12mo. pp. 222. G. P. Engelhard & Co., Chicago, 1906.

This interesting little book is an attempt to bring order into the confused realm of the so-called, auto-intoxications. The author believes with most of us that the word, auto-intoxication, is a much overworked term and is generally used to cover the diagnostic ignorance or indolence of the physician. He tries to free the subject from the vagueness and obscurity that usually characterizes it and to group the true autotoxicoses, as he calls them, into definite, clearly defined classes. A system of therapeutics evolved from toxicological principles and clinical experience comprises the second part of the monograph. The reader, even though he cannot always agree with the author will find here many valuable suggestions.

OPERATIVE OTOLOGY, SURGICAL PATHOLOGY AND TREATMENT OF DISEASES OF THE EAR. By Clarence John Blake, M. D., Professor of Otology in Harvard University, and Henry Ottridge, Reik, M. D., Associate in Ophthalmology and Otology in Johns Hopkins University. 1906. D. Appleton & Co., New York and London. Price: Cloth, $3.00.

This volume, devoted to the surgical pathology and treatment of diseases of the ear, contains 359 pages, including 13 full page plates and 40 illustrations. The majority of the illustrations are very poor, hardly serving the purpose for which they are intended. The first chapter is devoted to the surgical anatomy of the temporal bone and adnexa. The descriptions are especially noted for their brevity. The second chapter devoted to aseptic technique is especially valuable in that the minor details are carefully gone into. Due consideration of anesthesia and anesthetics is also noted. In the chapter on mastoidectomy the authors recommend the blood clot method of dressing as an ordinary procedure in both the acute and chronic cases. The wisdom of this is questionable. They do not endorse the removal of the entire mastoid tip and the extension of the operation to include the root of the zygoma in every case, as advocated by Whiting. Chapter 8 is devoted to adenoids, blood infusion and lumbar puncture. These procedures are described in detail. There is also an appendix which contains some abstract of recent literature with a discussion of the hearing tests as an aid for locating lesions in the tympanum. The book contains a good index.

MANUAL OF DISEASES OF THE EAR, NOSE AND THROAT. By John Johnson Kyle, B. S., M. D., with 160 illustrations. 1906. P. Blakiston's Son & Co., 1012 Walnut st., Philadelphia, Pa.

Scarcely three years have elapsed since the author's Compend of Diseases of the Ear, Nose and Throat appeared. This volume, which contains 595 pages and 160 illustrations, appears under another cover and title. All the chapters

have been much enlarged and more fully illustrated. The chapter on the embryology of the ear, nose and throat does credit to most of the larger works on this subject, as most writers barely touch on the embryology. The chapter on bacteriology and pathology has been largely rewritten and many additions made. It is to be noted that the author inclines to the view of the men who remove tonsils and adenoids with a local or no anesthetic, considering it better to sacrifice a certain amount of thoroughness for safety. All the modern methods of treatment and examination, including the serum treatment of hay fever, the submucous resection of the septum, bronchoscopy and esophagoscopy are briefly but clearly described. In fact all of the important subjects relating to the ear, nose and throat have been well considered, all in all, making it a very handy little work of reference.

MANUAL OF ANATOMY, SYSTEMATIC AND PRACTICAL, INCLUDING EMBRYOLOGY. By A. M. Buchanan, M. A., M. D., C. M., F. R. P. S., Glas. Vol. 1, Osteology, Upper Limb and Lower Limb. Chicago. W. T. Keener & Co. $2.75 net.

This is volume I of the series designed to cover the whole of human anatomy in a systematic and practical way. The section on osteology contained in this volume treats of the subjects in an exhaustive manner, and gives an account of the ossification of each bone after the description. This alone makes the work one of considerable value. The upper limb and lower limb are described in the order in which they are met with in the course of dissection. The illustrations are done by Mr. James T. Murray, of Edinboro. Most of them are colored and are very similar to the plates encountered in Gray's Anatomy. Many of them, however, are specially executed from original sources.

THE PRINCIPLES AND PRACTICE OF MEDICINE. By William Osler, M. D. Sixth Edition. New York and London. D. Appleton & Company. 1905.

The sixth edition of this work, which has been so favorably received, is marked by much rearrangement of its contents and many additions. The diseases due to animal parasites have been arranged under one section and grouped according to the zoological position of the parasite. The section on nervous diseases has been recast and enlarged. The article on typhoid fever includes recent investigations, and has been much amplified.

THERAPEUTICS: ITS PRINCIPLES AND PRACTICE. By Horatio C. Wood, M. D., and Horatio C. Wood, Jr., M. D. Twelfth Edition. Philadelphia and London. J. B. Lippincott Company. 1905.

This edition has been modified to meet the requirements of the new pharmacœia, and has incorporated in it new sections on local anæsthesia, including spinal and neural, and on expectorants and on disinfectants. Much new classification and rearrangement of drugs has been carried out, as well as the addition of many new drugs.

URIC ACID: THE CHEMISTRY, PHYSIOLOGY AND PATHOLOGY OF URIC ACID AND THE PHYSIOLOGICALLY IMPORTANT PURIN BODIES, WITH A DISCUSSION OF METABOLISM IN GOUT. By Francis H. McCrudden. Published by P. B. Hoeber, New York.

This very extensive and exhaustive volume dealing with uric acid and its decomposition products and the purin bodies is especially remarkable and commendable for its compilation of the literature of this much-discussed subject. It brings up to date the research that has been done on the physiology of the

aric acid, effects of food, alcohol, exercise and physiological functions, and also on the urine and general metabolism, especially in gout, of this vast subject. The research on the chemistry, physiology and pathology of these products with all their intercurrent relationship with the tissues in different organisms (birds, mammals, etc.), are discussed in detail. Haig's view of a pathological importance of uric acid is considered unwarranted. McCrudden's definition of the present status of the fundamental importance of the theory of uric acid metabolism and gout is as follows: (1) The purin bodies only have an influence on the excretion of the exogenous uric acid (Burian and Schur.); (2) many of the old views concerning the solubility of uric acid in water and in the urine, and the effects of alkalis and other agents on the solubility of uric acid have been overthrown (Fischer); (3) the prevailing views concerning the acidity of the urine and the alkalinity of the blood are far from correct; (4) many theories concerning uric acid in the blood and urine are incorrect and form no scientific basis for the alkali therapeutics in gout (His and Hoeber); (5) uric acid is excreted by man in great part unchanged; (6) these experimental data entirely change the old view that uric aid is an antecedent of urea and the destructive metabolism of proteid.

TEXT-BOOK OF MEDICAL JURISPRUDENCE AND TOXICOLOGY. By John J. Reese, M. D. Seventh edition. Revised by Henry Leffmann, A. M., M. D. 1906. Philadelphia: P. Blakiston's Sons & Co.

This is one of the best of the smaller books on medical jurisprudence. It is written more especially for the student, and for that reason there is an almost total absence of the discussions upon mooted points which are so frequent in the larger works upon this subject. The chapters on expert witness and the court work which falls to the lot of the average physician are well written and give all the information that is necessary. An especially valuable part of the book is the toxicology, which contains in as brief a manner as possible the necessary information upon the subject of poisons. It can be said that this book meets the requirements of the student in the best manner possible. In spite of its brevity, the book is surprisingly free from errors. It is written in a style that is thoroughly readable and its spirit is much less dogmatic than is usual in abridged treatises of this kind.

MODERN THERAPEUTICS. Fourth Revised Edition, Adapted to the New (1905) Pharmacopœia. A Text-Book on Modern Materia Medica and Therapeutics. By A. A. Stevens, A. M., M. D., Lecturer on Physical Diagnosis, University of Pennsylvania; Professor of Pathology, Woman's Medical College of Philadelphia. Octavo of 670 pages. Philadelphia and London. W. B. Saunders & Company. 1905. Cloth, $3.50 net.

This is the fourth edition of a work which gives an outline of modern materia medica with a concise consideration of therapeutic application in each case. It has been revised and adapted to the recent revision of the Pharmacopœia.

CUSHNY'S PHARMACOLOGY. A Text-Book of Pharmacology and Therapeutics: The Action of Drugs in Health and Disease. By Arthur R. Cushny, M. A., M. D., Aberd., Professor of Pharmacology in the University College, London. In one handsome octavo volume of 752 pages, with 52 illustrations. Cloth, $3.75 net. Lea Brothers & Co., Publishers, Philadelphia and New York. 1906.

The fourth edition of Cushny's admirable text-book on pharmacology and therapeutics, has been published primarily to bring the work into harmony with the new revision of the Pharmacopœia (1905), but all pertinent literature which has

appeared since the publication of the previous edition has been made use of, while some of the older references have been discarded. Many changes in opinion have in this way been recorded.

A MANUAL OF CHEMISTRY. Inorganic and Organic. By Arthur P. Luff and Frederic James M. Page. Third Edition. Chicago. W. T. Keener & Co. 1905.

This book is intended for use in medical schools, and attempts to give concisely those portions of chemistry, both organic and inorganic, which bear on medicine. It is concise, thorough, and fulfils its purpose, but, we imagine, requires a preliminary knowledge of chemistry of some breadth.


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